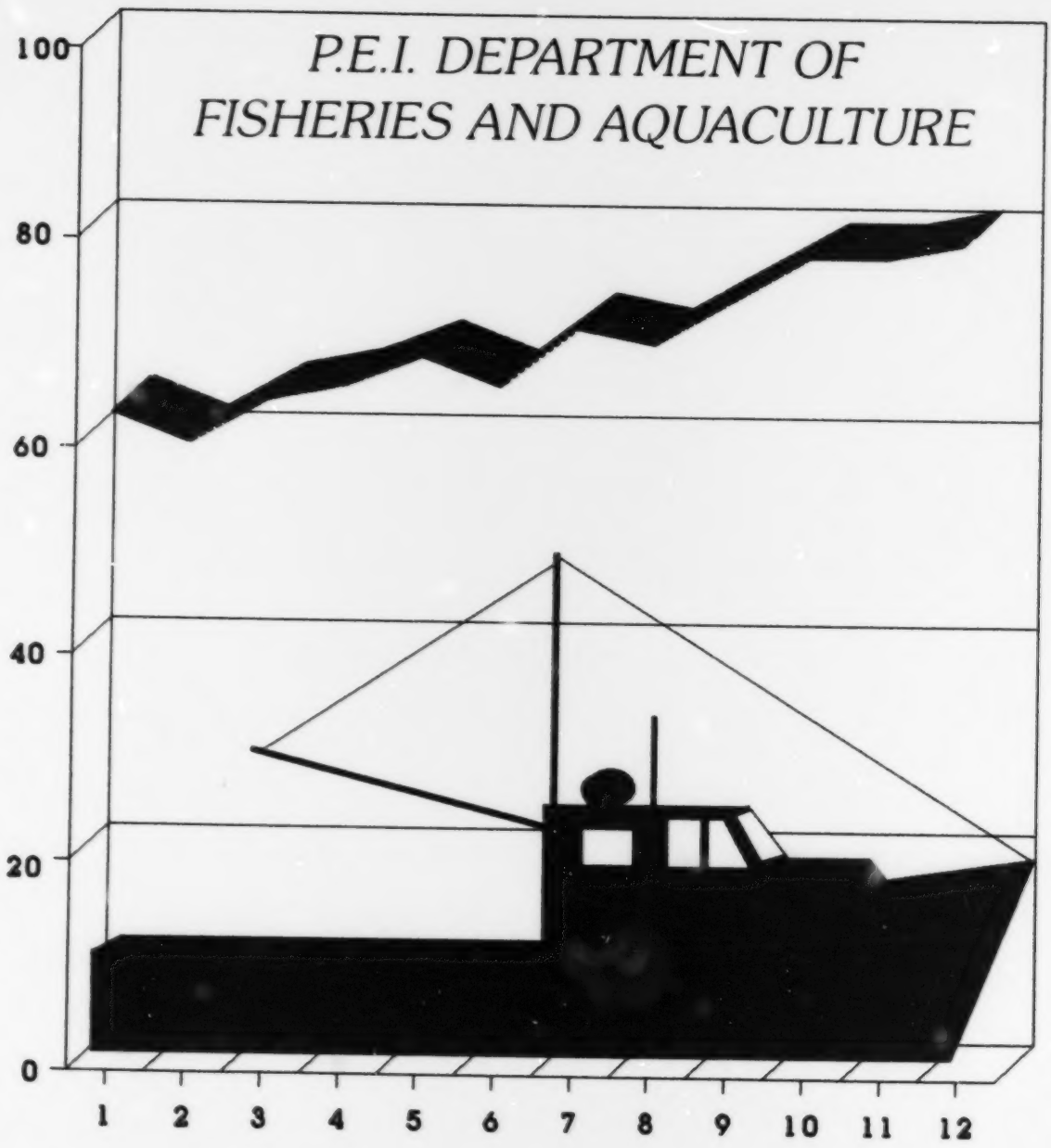

ANNUAL REPORT 1991

PRINCE EDWARD ISLAND
CANADA

Annual Report

Department of Fisheries and Aquaculture

Prince Edward Island

for the year ended December 31st

1991

TO HER HONOUR
THE HONOURABLE MARION REID,
Lieutenant Governor of the Province of Prince Edward Island

May It Please Your Honour:

I have the honour to submit herewith the Report of the Department of Fisheries and Aquaculture for the period ended December 31, 1991.

I have the honour to be,

Your obedient servant,

HONOURABLE BARRY HICKEN,
Minister

TO THE HONOURABLE BARRY HICKEN
MINISTER OF FISHERIES AND AQUACULTURE
Charlottetown, P.E.I.

Sir:

I have the honour to submit herewith the Report of the Prince Edward Island Department of Fisheries and Aquaculture for the period ended December 31, 1991.

Respectfully submitted,

Douglas A. Cameron,
Deputy Minister

92-05992/

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FOREWARD
ANNUAL REPORT

The fishing industry proved to be one of the brighter spots in the P.E.I. economy during 1991. Buoyed by stronger markets and prices in the lobster fishery, the total value of landings for 1991 reached $68.9 million, up by 6% over last year's total of $65 million.

The fishing industry continues to be a major driver of the P.E.I. economy, providing employment for 7,900 people in fishing and fish processing. Seafood products annually account for 35 - 40% of the Province's international exports and the direct and indirect benefits to the economy from the fishery are estimated to exceed $200 million annually.

1991 marked the second year of the Special Lobster Promotion Program operated by the Department with funding assistance through the Canada/P.E.I. Cooperation Agreement on Fisheries Development and A.C.O.A. Projects carried out over the first two years of the Program have focused upon development of promotional materials, market research, attendance at trade shows, advertising, product development and test marketing. The positive turn around in lobster markets in 1991 can be attributed to a number of factors, not the least of which is the success of the Special Lobster Promotion Program. Since lobster is by far the most important fish species in Prince Edward Island, promotion of that sector will continue to be a priority in the coming year.

The importance of the lobster fishery has led both the Department and the fishing industry to be very concerned about the impact of increases to the minimum legal size for lobster. Two of the Province's three lobster districts are in the process of having the minimum carapace size gradually increase from 2-1/2" to 2-3/4". Fishermen have expressed concerns about the possible negative impacts of size increases since before they began in 1990 and during the past year the Department assisted the processing sector to quantify the impact on lobster processing.

The study showed that the increases will limit the range of products processors will be able to supply to the marketplace and that viable markets for the smaller sized products will be lost. The impact on processing and the concerns of fishermen over reduced catches led the Department to strongly petition the federal government to suspend further scheduled size increases. A decision on this matter will be forthcoming in the new year.

The success of the lobster fishery in 1991 was in sharp contract to the disastrous year experienced in the herring fishery. Low prices and weak markets characterized the herring roe fishery and led to only slightly more than one third of the Fishermen's Bank quota being utilized.

The experience in 1991 served to highlight our over dependence on the Japanese roe market and the need to diversify markets and better utilize our herring resource for food fish production. Similarly, the mackerel resource available to P.E.I. has been underutilized. Despite the need for cost efficient processing due to current market prices for these pelagic species, the Department views them as opportunities to further develop the P.E.I. fishery. Additionally, competitive fishing provinces in the Gulf of St. Lawrence are working to develop these fisheries and P.E.I. must become more active to maintain traditional harvest levels. The Department, therefore undertook to formulate a development plan for small pelagic species. The plan was still in process at year end, however, it will hopefully result in initiatives to begin further development of these fisheries in 1992.

1991 saw continued positive results of Departmental programming in the aquaculture sector. Production of cultured mussels increased by 26% to reach a new high of 7.5 million pounds. A significant development in marketing the year's production was penetration of the European market by P.E.I. mussel firms. Development work to enhance the oyster fishery continued to pay dividends, although landings were down in 1991. Total sales in the finfish culture industry grew modestly in the past year and were highlighted by increased sales of hatchery products from P.E.I.'s well established certified fish hatcheries.

Management issues in the fishery continued to demand increasing staff attention during the past year. Species advisory committees at the local and regional levels, working groups and special seminars demand substantial staff time and attention to ensure the Province maintains equitable access to fisheries resources. Local, regional and in some cases, Atlantic wide meetings are held to deal with management issues in groundfish, small pelagics, lobster, bluefin tuna, snow crab and scallops, while local advisory committee meetings are held for such species as molluscan shellfish, eels and smelts. The Province's participation in these management issues is vital to the maintenance and development of our fishery and constitute one of the major roles of the Department.

As we look back on a busy year in the fishery, I offer my sincere thanks to fishermen's and processors organizations for their advice and cooperation. I commend the staff of the Department for their dedicated effort on behalf of the P.E.I. fishing industry, and I express my gratitude to Ministers Bernard and Hicken for their insight, leadership and guidance during the past year.

Douglas Cameron
Deputy Minister

DEPARTMENT OF FISHERIES AND AQUACULTURE

ADMINISTRATION

The approved budget for the Department of Fisheries and Aquaculture for the fiscal year, April 1, 1990 to March 31, 1991 was $3,177,500. Total expenditures were $2,754,123.58

Total Revenue for the 1990-1991 fiscal year was $316,101.76.

The programs of the Department were carried out by 24 full time staff and 3 part-time staff during 1990-1991.

A detailed expenditure report of the department for fiscal year 1990/91 follows:

REPORT OF DEPARTMENT EXPENDITURES
April 1, 1990 - March 31, 1991

Expenditures	Original Estimate	Actual Expenditure
FISHERIES ADMINISTRATION		
Administration	60,000	58,860.73
Equipment	10,800	4,730.55
Materials/Supplies	3,500	3,269.72
Professional Services	57,900	48,157.73
Salaries	248,400	268,016.92
Travel	32,000	19,759.45
TOTAL	412,600	402,795.10
EXTENSION		
Administration	1,000	887.24
Materials/Supplies	152,500	164,817.10
Professional Services	35,800	35,792.20
Salaries	104,200	102,896.36
Travel	22,300	22,955.39
Fisheries Organizations Funding	84,900	64,440.00
Travel Grant for Fishermen	10,000	29,194.02
Baitshed Program	20,000	10,022.50
TOTAL	430,700	431,004.81
RESOURCE UTILIZATION AND MARKETING		
Materials/Supplies	57,600	92,379.88
Professional Servs.	10,800	92,038.69
Salaries	266,500	253,232.22
Travel	36,400	43,208.45
Test Production	30,000	52,939.14
Product Utilization	80,000	24,168.75
TOTAL	481,300	557,967.13
PROCESSING & QUALITY		
Equipment	2,000	295.90
Materials/Supplies	5,200	4,910.10
Salaries	118,000	103,731.53
Travel	27,200	21,011.90
Processors Quality	100,000	129,387.88
Processors Technology Dev't Program	126,000	19,895.74
TOTAL	378,400	279,233.05

Expenditures	Original Estimate	Actual Expenditure
AQUACULTURE		
Equipment	40,000	13,049.88
Materials/Supplies	74,500	49,925.36
Professional Servs.	47,000	36,899.79
Salaries	393,600	351,872.62
Travel	61,200	48,127.50
Malpeque Oyster Cultures Inc.	1,300	928.50
Shellfish Enhancement Program	80,000	77,500.00
Aquaculture Crop Insurance Asst.	28,000	0
Mussel & Trout Expansion	50,000	10,843.53
Technology Dev't	165,000	146,723.15
TOTAL	940,600	735,870.15
FINANCIAL SERVICES		
Equipment		17,820.00
Salaries	69,200	78,432.46
Travel	4,700	5,088.04
Commercial Fishermen's Investment Incentive	135,000	124,718.82
Fishermen's Groundfish	165,000	102,093.42
Nearshore Vessel	160,000	19,100.60
TOTAL	533,900	347,253.34
GRAND TOTALS	**3,177,500**	**2,754,123.58**

REVENUE
April 1, 1990 - March 31, 1991

FISHERIES ADMINISTRATION	
Miscellaneous	$ 26.68
EXTENSION	
Miscellaneous	558.00
Cooperation Agreement	950.00
RESOURCE UTILIZATION	
Cooperation Agreement	95,127.57
Miscellaneous	20.00
PROCESSING/QUALITY	
Miscellaneous	16,025.00
AQUACULTURE	
Aquaculture Incentive Grant	10,705.90
Cooperation Agreement	166,215.88
FINANCIAL SERVICES	
Miscellaneous	26,472.73
TOTAL DEPARTMENT REVENUE	**$316,101.76**

PRINCE EDWARD ISLAND FISHERIES 1991 STATISTICAL OVERVIEW

The P.E.I. fishing industry presently employs approximately 7,460 people - 5,060 in fishing and 2,400 in processing. Many more are employed in industries which support the fishery, such as outfitting and vessel construction. An economic analysis of the P.E.I. fishery carried out in 1991 revealed that sales of fresh and processed fish products and indirect benefits associated with the sale of those products generated an estimated total of $201 million for the P.E.I. economy in 1990.

Preliminary statistics for the 1991 fishing season show an overall decrease of 17% in landings and an overall increase of 6% in landed value compared with the 1990 figures. (See Appendix 3, Page 45).

Groundfish

Total groundfish landings in 1991 decreased by 7% compared with 1990, with the value increasing by 9%, from $6.5 million in 1990 to $7.1 million in 1991.

Compared with 1990 data, cod landings increased by 19% and values increased by 109%, from $1.2 million in 1990 to $2.4 million in 1991. This significant value increase can be attributed to the supply shortage throughout the Atlantic region. Hake landings decreased by 19% from 3.9 million to 3.1 million with values dropping by an equal percentage. Landings of all flatfish increased by 65%, from 3.1 million, in 1990 to 5.1 million in 1991, with the value increasing by 66% as well.

Pelagic

Pelagic landings decreased in 1991 to 23.2 million pounds from 33.4 million pounds reported in 1990, representing a 30% decrease. The landed value decreased 46%, from $4.328 million in 1990 to $2.330 million in 1991.

Shellfish & Lobster

Lobster landings in 1991 totaled 22.8 million, compared with 22.5 million in 1990, an increase of 1.4%. The landed value increased by 20%, from $40.348 million in 1990, to $48.521 million in 1991.

Mussel landings were up in 1991 by 26% compared to 1990 figures and their dollar value increased by 40% from $2.6 million in 1990 to $3.7 million in 1991. Oyster landings, however, decreased by 30% in 1991 to 2.7 million compared with 3.8 million in '90 with the dollar value decreasing by 47% from the 1990 figure of $3.7 million to $1.9 million in 1991.

The volume of clam landings was down 56% in 1991 with the dollar value dropping 48%, from $.6 million in 1990 to a 1991 value of $.3 million.

Snow crab landings increased slightly from 1.25 million pounds to 1.32 million pounds with the dollar value increasing 16% from $1.25 million to $1.45 million. Rock crab landings decreased 16% from .8 million in 1990 to .6 million in 1991 with values dropping from $.151 million to $.127 million, also a 16% decrease.

Seaplants

Seaplant landings decreased by 34% from 32.4 million in 1990 to 21.4 million in 1991. Dollar values also decreased by 37% from $3.4 million in 1990 to $2.1 million in 1991.

The landed weights and values of fish and seaplants in P.E.I. for 1990 and 1991 are as follows:

P.E.I. FISH LANDINGS AND VALUES
1990-1991

SPECIES	1990 p		1991 p	
Groundfish	**Pounds**	**Value $000**	**Pounds**	**Value $000**
Cod	5,847,236	$ 1,169	6,970,961	$ 2,440
Hake	3,855,017	463	3,123,220	375
Flounder	1,206,980	302	2,687,971	672
Blackback	1,868,045	467	2,352,724	588
Greysole	13,110	3	20,190	10
Yellowtail	4	--	48,325	12
Redfish	30,036,222	4,055	24,962,418	2,996
Halibut	2,305	3	1,355	2
Haddock	22	--	--	--
Pollock	10,436	1	1,194	--
Tomcod	2,982	1	24,011	2
Dogfish	599,147	42	--	--
Shark	456	--	3,283	2
TOTAL	**43,441,962**	**$ 6,506**	**40,195,652**	**$ 7,099**
Pelagic				
Tuna	74,916	$ 734	14,767	74
Mackerel	5,329,848	799	6,178,808	742
Herring	26,771,416	1,606	15,954,360	638
Gaspereaux	135,831	20	174,987	25
Eel	442,319	663	251,280	276
Smelt	344,734	121	285,008	114
Silverside	134,970	20	255,162	31
Salmon	2,500	9	1,163	44
Trout*	112,075	356	78,993	265*
Arctic Char	--	--	1,496	121
TOTAL	**33,348,609**	**$ 4,328**	**23,196,024**	**$ 2,330**
Shellfish				
Lobster	22,451,862	$40,348	22,766,685	48,521
Bar Clam	1,410,534	423	544,787	163
S.S. Clam	313,270	188	216,913	152
Quahaug	1,397,049	1,146	1,087,166	734
Scallop	217, '22	978	127,940	640
Mussel	5,944,973	2,675	7,489,000	3,745
Oyster	3,851,169	3,659	2,699,974	1,926
Snow Crab	1,250,654	1,251	1,325,797	1,459
Rock Crab	754,323	151	636,306	127
TOTAL	**37,591,256**	**$50,819**	**36,894,568**	**$57,467**
TOTAL FISH	**114,381,827**	**$61,653**	**100,286,244**	**$66,896**
IRISH MOSS	**32,422,768**	**$ 3,404**	**21,432,180**	**$ 2,143**
TOTAL FISHERY PRODUCTS	**146,804,595**	**$65,057**	**121,718,424**	**$69,039**

p Preliminary figures for 1990 and 1991.

*Arctic Char and Trout (rainbow and speckled) values for 1991 include $120,000 & $48,000 respectively for off-Island egg and fingerling sales. This compares with $68,750 realized in 1990. Figures represent trout, arctic char and salmon cultured in fresh water.

The following table shows the comparisons for P.E.I.'s landings and values, by species groups, over the period 1975 - 1991.

PRINCE EDWARD ISLAND, 1975-1991
Landings, Quantity and Values by Species Group
(In thousands of lbs. and thousands of dollars)

	Groundfish		Pelagic & Estuarial	Molluscs & Crustaceans	Marine Plants	Seafish Total Excluding Marine Plants		Total
1975	Q.	15,032	5,529	11,352	40,318	31,914	Q.	72,232
	V.	1,058	670	9,078	1,610	10,806	V.	12,416
1976	Q.	14,972	6,998	11,263	28,843	33,233	Q.	62,075
	V.	1,091	1,077	9,673	878	11,841	V.	12,719
1977	Q.	22,454	5,548	11,849	30,116	39,851	Q.	69,967
	V.	2,137	1,156	10,786	1,085	14,078	V.	15,164
1978	Q.	28,248	8,850	15,307	31,709	52,905	Q.	84,614
	V.	3,154	1,605	17,928	1,873	22,697	V.	24,560
1979	Q.	33,995	10,581	16,716	42,943	61,273	Q.	104,216
	V.	4,300	1,898	20,259	2,689	26,457	V.	29,146
1980	Q.	42,252	1,238	16,475	35,225	70,966	Q.	106,191
	V.	4,672	2,302	18,037	1,781	25,011	V.	26,792
1981	Q.	45,144	14,035	17,568	37,485	76,747	Q.	114,231
	V.	5,413	2,309	22,258	1,874	29,982	V.	31,856
1982	Q.	42,223	18,046	18,672	34,043	78,942	Q.	112,986
	V.	4,823	2,524	26,379	1,702	33,726	V.	35,428
1983	Q.	45,039	20,736	21,955	28,709	87,730	Q.	116,439
	V.	4,883	3,539	34,365	1,435	42,787	V.	44,222
1984	Q.	41,646	15,581	21,579	34,724	78,806	Q.	113,585
	V.	4,461	3,262	28,323	1,736	36,046	V.	37,821
1985	Q.	34,247	20,280	26,580	38,402	81,107	Q.	119,509
	V.	4,823	3,639	40,905	2,496	49,366	V.	51,863
1986	Q.	30,116	33,880	31,435	27,785	95,431	Q.	123,216
	V.	5,587	4,812	54,999	1,806	65,398	V.	67,204
1987	Q.	28,366	33,988	29,830	30,586	92,183	Q.	122,770
	V.	7,512	4,916	58,421	2,141	70,848	V.	72,989
1988	Q.	30,383	29,216	33,904	33,142	93,504	Q.	126,646
	V.	4,624	4,344	66,746	2,628	75,714	V.	78,342
1989	Q.	37,300	18,258	36,625	32,667	92,183	Q.	124,850
	V.	5,960	3,163	60,224	3,266	69,346	V.	72,612
1990	Q.	43,442	33,349	37,591	32,423	114,372	Q.	146,805
	V.	6,506	4,328	50,819	3,404	61,653	V.	65,057
1991	Q.	40,196	23,196	36,895	21,432	100,286	Q.	121,718
	V.	7,099	2,330	57,467	2,143	66,896	V.	69,039

*Figures are Preliminary

COMMERCIAL FISHERIES BRANCH

Lewie Creed, Director

The Commercial Fisheries Branch is responsible for carrying out a full range of programs and services for P.E.I. fishermen and processors. The Branch includes the three Divisions of Extension, Resource Utilization, and Processing and Quality.

The Director is also responsible for ongoing liaison with the Department of Fisheries and Oceans and provides support services on issues addressed by the Federal Provincial Atlantic Fisheries Committee and the Atlantic Council of Fisheries Ministers. As well, the Director coordinates the Department's interface with other Provincial Departments and Agencies.

During 1991, the Commercial Fisheries Branch continued projects undertaken through the Special Lobster Promotion Program. 1991 marked the second year of this three year Federal/Provincial Program designed to diversify and expand markets for the Province's most important fish species. A detailed report on these activities is contained in the section of this report dealing with the Resource Utilization Division.

The Branch provided leadership in addressing a number of fisheries management issues with the Department of Fisheries and Oceans. These included the issue of lobster carapace size increases, continued efforts to secure equitable access for P.E.I. fishermen to the Gulf of St. Lawrence snow crab stocks, numerous groundfish management matters, the Atlantic Bluefin Tuna Management Plan and management of the small pelagics fishery.

The Branch continued programming to assist the seafood processing industry to maintain high quality standards. The Branch worked cooperatively with the processing sector to assist in meeting provisions of the code of Good Manufacturing Practices and the Quality Management Program, both of which have been instituted by the Department of Fisheries and Oceans.

The maintenance of port structures and safe access to the fishing grounds are a priority for the P.E.I. fishing industry. The Branch worked with port committees throughout the Province to identify port needs and assisted in presenting these needs to the federal government. As well, a number of minor port improvements were carried out to assist in maintenance and upkeep of these federal structures.

CANADA/P.E.I. COOPERATION AGREEMENT ON FISHERIES DEVELOPMENT

In October 1989, a five year $10.6 million Cooperation Agreement on Fisheries Development was signed between the Government of Canada and the Government of Prince Edward Island. The Agreement covers the period April 1, 1989 to March 31, 1994 and calls for $7.5 million in development expenditures by the Department of Fisheries and Oceans and a total of $3.1 million in development expenditures by the P.E.I. Department of Fisheries and Aquaculture.

The Director provided support services to the Management Committee which was formed to implement programs under the Agreement. Membership on the Management Committee consists of the Regional Director-General of the Department of Fisheries and Oceans and a representative of the Atlantic Canada Opportunities Agency, representing the Federal Government, the Deputy Minister, P.E.I. Department of Fisheries and Aquaculture and a representative of the P.E.I. Executive Council Office representing the Province. The Committee regularly reviews programs and projects to be implemented under the Agreement and prepares reports for Ministers on activities undertaken.

The Director also co-chairs the Agreement Coordinating Committee with the P.E.I. Area Manager, Department of Fisheries and Oceans. The Coordinating Committee reports to the Management Committee and is responsible for the day to day operation of the Agreement.

A detailed report on the activities of each Division follows.

EXTENSION DIVISION

Friend Herring - Manager
Rory McLellan - Fisheries Specialist

The Extension Division is the communications function of the P.E.I. Department of Fisheries and Aquaculture. Primarily it acts as the bridge between the Department and the fishing industry to provide a meaningful exchange of information.

The principle purpose of the Division is to liaise with fishermen, and various fisheries organizations to promote and improve positive developments at the ports, within the communities and the industry. To achieve this goal, local port meetings and improvements are organized, technical and safety courses are sponsored, and travel is arranged to educational and technical seminars, work shops and conventions.

The Division is also responsible for public relations and information to the general public with respect to fishery issues. In the past year, public awareness of the fishery has heightened as have environmental concerns. To meet the public need for information, the Division has upgraded and re-printed many departmental publications and is in the process of translating others into the French language. News releases concerning the fishery and the Department's involvement in its development and management are drafted and published, in addition to other printed matter of an educational benefit to schools.

In an effort to bring government services to the communities, the Extension staff maintains office hours on a part-time basis at the various Regional Service Centres. During 1991, Friend Herring continued to be the Department's contact to the western ports of the Province and was available Thursday mornings at the Centre in Summerside and every Thursday afternoon in O'Leary. Rory McLellan represents the Department at the eastern harbours and uses the Montague office as a base on Tuesdays and Souris on Wednesday afternoons. Contacts made either by this method or direct telephone with the main Charlottetown office led to many follow-up visits to progress matters of interest to the fishermen at their homes or shore sites.

Staff from the Division represented the Department on a number of groups developing policies and procedures to deal with several topics.

Several meetings were held concerning an "Interdepartmental Committee on Grants", which allows for an equal cost-sharing, maximum $1,500 grant, to assist festivals/events, fairs and exhibitions to advertise and promote. Avoiding duplicate funding is one of the prime benefits of this group's effort. The Committee consists of representatives from Tourism, Agriculture, Fisheries, Treasury Board and Community and Cultural Affairs.

An evaluation form to measure the success of various festivals and events has been developed. This assists the committee to determine the need to continuously improve and upgrade community festivals. This past year the Extension Division played a major role to changes in the Summerside Lobster Carnival. The Department sponsored a celebrity "cook-off", which featured local as well as national celebrities, as a publicity event for the carnival.

The Division represented the Department at meetings with Federal and Provincial agencies to develop a "Marine Spill Support Plan". The objective of this plan is to facilitate and co-ordinate the Prince Edward Island Government and its agencies response in support of the lead agency to a major marine spill incident. Copies of this plan are available from the Emergency Measures Organization.

A three level meeting was held among representatives of Coast Guard Canada, major tow-barge companies and fishermen concerning the fall lobster season in Western Northumberland Strait. During the August 10th to September 10th lobster season, traps, lines and buoys have been damaged because of large commercial vessels cutting off or fouling this fishing gear.

It was agreed to lay out a specified large vessel course and twenty-four hour notice of ship movements would be given to Coast Guard Radio in Charlottetown for rebroadcast. Some improvement in regards to gear loss was experienced in 1991, but a further meeting of the same group will work to improve the matter.

This year the Indian Food Fish Agreement operated in a successful manner for the Lennox Island Indian Band. Because of their conversation and cooperative spirit, approximately 5000 pounds of lobster were shared among a maximum of 150 native families.

The Agreement was reached through a committee made up of the Band, The Department of Fisheries and Oceans and the Province.

Again this year, the Department arranged for summer students to be employed at Miminegash to conduct Irish Moss quality sample analysis from catches and processing plants. As well, monitoring of the raking effort was carried out using daily boat counts from Howards Cove along to North Cape and down to Kildare Cape.

The Province funded extension work by marine plant biologist, Glyn Sharpe, as he and his group began studies of seaplant beds throughout the Province. This subject will be covered in greater detail elsewhere in this report.

INFORMATION SERVICE

A number of information programs were organized or continued and carried out by the Extension

Division during the year. These programs, which are intended to disseminate information to the fishing industry, the media and the public include:

Marine Weather Service

In 1991, the Division, in association with Environment Canada, sponsored a Marine Weather Service. This service enables fishermen to call O'Leary, Souris and Summerside and obtain an updated weather forecast.

Weather forecasts are updated four times daily on a recording which can be accessed by phone. This service, which became fully operational in November 1991, has been appreciated and well used by both fishermen and the public. The O'Leary telephone machine received 873 calls in November and 1,731 in December, the Souris machine 174 calls in November and 192 in December, and the Summerside machine 3,619 calls in November and 6,564 in December. The telephone numbers are 687-2434 for Souris, 859-1661 for O'Leary and 436-1936 for Summerside.

Radio Broadcasts

Improvements have been made to the weekly radio show which is written, produced and broadcast by Division staff. The show has been renamed "The Fisheries Price and Information Report" and features more news items and market conditions, as well as prices, quota monitoring, landings, meeting notices and training course announcements.

This three minute program, which is aired on C.F.C.Y., C.H.T.N., C.J.R.W. and Q93 F.M. is now a year round production and broadcasts statistical information provided by the Resource Utilization Division. The broadcast is aired at 6:00 a.m. and 6:00 p.m. every Saturday.

Newspaper Ads

The Division is responsible for the majority of newspaper advertising purchased by the Department and in 1991 it produced and published over 25 ads in local and regional newspapers and magazines. A number of news releases on projects and programs of the Department were provided to the local media and national trade journals.

The Division also assisted fishermen's organizations to publish and distribute several newsletters.

Booth Displays

Display booths were placed at major fairs and exhibitions held throughout P.E.I. The purpose of the displays was to increase and promote general awareness of the P.E.I. fishing industry and the role of the Department. Summer employees were responsible for assembling the displays and supervising their operation at the various events. In 1991, displays were placed at the West Isle Marine Show, the Tignish Irish Moss Festival, the Summerside Lobster Carnival, the Northumberland Fisheries Festival, the Tyne Valley Oyster Festival, Old Home Week and the Kensington Harvest Festival.

The Division's 15, x 8, full colour, bilingual booth display was again prominent at these events and was improved in 1991 with new display cases being built and a challenging new computer game being designed. This new game challenges contestants to answer questions on the diversity and importance of the P.E.I. fishery and will be fully operational for the 1992 season.

The Division assisted many other events throughout the summer. Those of special note were Georgetown Days, the Souris Regatta, the St. Lawrence Scallop Festival competition, and the Northumberland Fisheries Festival where the Division sponsored prizes. Members of the Department also took part in a deep sea fishing competition.

Publications:

The Extension Division revised and updated a number of species information pamphlets on lobster, cod, scallop, oysters, soft-shell clams, mackerel, tuna, irish moss and other species. In 1991 the Division was also involved in the translation of some of the provincially produced materials, making them available in the French language.

The Division continues to upgrade the library with species materials and to revise and publish Fishermens Record Keeping Books. In addition, publications such as the "East Coast Marine Weather Manual," and the "Gulf of St. Lawrence Marine Weather Manual" by Environment Canada and "A Coast Guard Study Into Fishing Vessel Safety", by the Canadian Coast Guard, are made available to fishermen on request.

Subscriptions to most national and many international fisheries publications continue to be made available to the industry, as do contacts the Division has in many parts of the world, who supply up to date information on landings, markets and management changes.

SCHOOL PRESENTATIONS

The Division continued to provide Island primary and secondary schools with "in class" demonstrations and a VHS video lecture series on our fishery. Each year this presentation is improved as our VHS video "The Island Fishery", is expanded and updated. This year a number of presentations were made at Island schools and over 300 written requests from students throughout North America were answered. In 1991, the Division advertised its list of publications in the national education periodical "Gratis" which is sent to every school, and every school board in Canada. This publication has been, and continues to be responsible for the large number of requests for material on the P.E.I. fishery being requested coast to coast.

In October, the Division assisted the Eptek National Exhibition Centre, in Summerside, with a traveling exhibition called "Gaspe; A Sea

Legend", which depicted the fishery in Gaspe, Quebec. Extension staff delivered lectures on the P.E.I. fishery noting the similarities and differences to the Gaspe fishery. This exhibition was attended by over 450 Island students.

In 1991, more films dealing with handling of fish on board vessels were added to the video library and all films have been cataloged into a central location. This makes the library more accessible to school and the general public for educational purposes.

TECHNICAL UPGRADING TOURS

On January 22, 1991, the Division organized and supervised an educational trip by van to the Massachusetts Lobstermen's Association's 28th Annual Weekend Convention held at Hyannis, with eight P.E.I. fishermen taking part. All fishing regions of the Province were represented and participants were members of local fishermen's organizations and held positions on their executive boards.

More than 1,000 United States lobster fishermen attended this marine equipment display, seminar/ workshop to deal with subjects such as marine safety regulation changes, lobster carapace size increases and research projects undertaken along the eastern seaboard. Most issues of concern and the changes happening in the U.S. fishery are also common to and of grave concern to P.E.I. and the Atlantic Fishery.

The group also visited the tuna fleet at the Port of Gloucester and saw the harbour on board a lobster boat. Another stop was the Port of Plymouth where Island fishermen boarded a 65' off-shore lobster vessel and visited with a scallop dragger and a groundfish dragger for a lively discussion on what the U.S. fishermen believed to be depleting resources.

TRAINING COURSES

In 1991, the major emphasis of training courses was once again, safety at sea. The very popular Marine Emergency Action course was refined and streamlined in order to offer a substantial emergency training course in only three days. This course was popular due to the practical experience it provided as opposed to some other courses which require more "classroom style" training.

The "Marine Emergency Action" course was held in five locations: Souris Curling Club, Murray River Community Centre, Howards Cove - Lot 6 Fire Hall, West Point Community Centre and Tignish Parish Centre. Over fifty fishermen participated in extinguishing fires using different types of extinguishers, in-water survival, boarding life boats, performing basic first aid and plotting courses on marine charts.

The in-water survival was conducted in open water found in the local areas as well as at swimming pools located at Mill River and Montague.

A benefit of the "Marine Emergency Action" was that it promoted more intense training and many fishermen who have taken the course have either taken more training courses or have expressed an interest in doing so. One of the more intensive courses offered in 1991, was the Fishing Master IV Course. It is an eight week comprehensive marine training session which provided an in-depth study of navigation and other marine related skills. Forty-six fishermen successfully completed this course at Georgetown, Murray River and St. Felix. Shared funding by the Department with Canada Employment and Immigration Commission (or local Community Future Groups) enabled more courses to be offered at a very reasonable cost to the fishermen.

Another popular course offered in 1991 was "Introduction to Computers". Four courses of fifteen hours were offered. Over forty participants successfully completed this course and several went on to advanced training in computers which was also cost-shared by the Division.

In the past year, the Division sponsored the President of the North Shore Fishermen's Association to join an "Agricultural Leadership Development Program", offered by the Extension Department of the University of Prince Edward Island and the P.E.I. Department of Agriculture. The "Leadership Development Program" had been developed to cover a range of topics of interest to farming, fishing and rural organizations. These included Effective Organization, how to run an organization; Working with Government, the relationship between Government and farming/ fishing organizations; and Leadership Skills, running a meeting, public speaking, dealing with the media and preparing briefs.

The success of this program in 1991 has led the Division to its expansion to other fishermen's groups and currently eight fishermen representing various areas are taking this course.

MARINE MAMMAL REMOVAL PROGRAM

The Department continued its responsibility for removal and disposal of stranded marine mammals from various Island shore locations. 1991 was quiet compared to the previous year when large pods of white sided dolphins were stranded in tributaries adjacent to Summerside.

This past season, six seals were removed from shore locations in Alberton, Grand River, Cable Head, Cardigan and Lower Montague. At Cabot Park an adult male harbour porpoise and a Charlottetown female juvenile were diagnosed as having died from severe chronic infection of the lungs and part of the brain. Pathologist, Pierre-Yves Daoust, D.V.M. Atlantic Veterinary College, will do further tests to define more clearly the nature and significance of the disease affecting these two animals.

Later in the fall, a twelve foot male pilot whale was grounded at Darnley and at time of writing, the A.V.C. had not completed the necropsy report. The disintegrated remains of a thirty-five foot (estimated) fin or minke whale came ashore at Dalvey in the National Park. The animal had been dead for some months and cause of death is unknown.

The excellent cooperation and interest from Dr. Daoust and several of his colleagues is commendable and they also form the technical backbone to the newly organized (1990) P.E.I. Stranding Network. The Prince Edward Island Stranding Network, under the leadership of its President, Ms. Pat Grey, will be participating in an international study, designed to collect information concerning the location and numbers of the various marine mammal species having died in the Gulf of St. Lawrence.

PORT WASTE DISPOSAL SYSTEMS

Last year a project was begun, in cooperation with Harbours and Infrastructure Branch of DFO, to provide environmentally acceptable steel waste oil containers at a number of the Island's busiest ports. In 1991, the Division assisted in the provision of 21 two hundred gallon capacity, double-skin tanks, to bring the total number in use to twenty-six. A total of six smaller, mini versions of these steel tanks were constructed and have a capacity of 100 gallons. The yearly pick-up of oil is arranged by Harbours and Infrastructure Branch, unless local interests wish to use the waste oil for furnace fuel, etc.

PORT MAINTENANCE

In 1991 the Division assisted five fishermen to re-locate their baitsheds at the port of Naufrage. This re-location was necessary due to flooding in the area. As part of the ongoing port maintenance program, the Division seeks to cost-share minor port repairs with Harbours and Infrastructure Branch. In the past year, cost-shared programs included the Extension of the stone breakwater at Annandale and for gravel being spread at Naufrage, Cardigan and Red Head (Morell).

The Division also fully paid for gravel and leveling at Annandale, Fortune, Basin Head, Malpeque, French River, Brae, Darnley, Northport, Pinette, MacAulays Wharf and Tignish Run. Assistance was also provided in the form of rip rap and gravel at aquaculture sites at York Pt. and West River.

During the year, the Province continued to operate and maintain electrical services at a number of shellfish port sites and at wharves located in Summerside, Souris and Newport. A new light and plug system was installed at Brush Wharf at Orwell Cove to service aquaculture activities there. The total number of electrical services number eighteen and the Division also acts as a liaison between port representatives requesting electrical repairs and the Harbours and Infrastructure Branch of Fisheries and Oceans who are responsible for power consumption and maintenance costs for the majority of Island wharves.

Additional installations of concrete haul-out facilities were completed at the Brudenell Monument (new) and the Lower Montague Slip was reconstructed primarily for use by mussel harvesters. A new haul-out was installed at Stanley Bridge (60 slabs) in April as part of the new boat harbour construction. The existing slip at Waterside (Pownal) was upgraded and extended further out to assist the increasing number of shellfish harvesters from this area.

Further work is required at Waterside and St. Peters Bay so that an additional 150 concrete slabs will be needed again next year.

One challenge to be developed in 1992 is a practical and economical sewage system to service harvesters trailers at York Point and Lower Bedeque. Both the Department's of Health and Environment have expressed concern about this situation recently.

In 1991, the Port Custodian, or Night Watchman Program, continued through the Department of Health and Social Services. This year there were 31 people employed for 400 hours of work, compared with twenty-three positions in 1990.

FISHERMEN'S HOLDING FACILITIES

The Fishermen's Holding Facilities, or Baitshed Program was continued during the fiscal year. Financial assistance of 75% of the material costs required to construct new units (maximum grant $1,000 per unit on new construction, maximum $600 per unit for up-grading existing buildings) is available to each fisherman on a once only basis. Because of the problems in the lobster fishery and lower landings of groundfish, money for construction of baitsheds was tight from the fishermen's standpoint.

During the past year three new baitsheds were constructed at Tignish and one unit was completed at Naufrage.

MARINE SAFETY

The Division represents the Department on the Canadian Marine Advisory Committee, a national regulating body which meets in Ottawa each May and November, and on the Regional Marine Advisory Committee which meets four times a year at various locations throughout the Maritimes.

In 1991, both committees were still considering the "Proposed Small Fishing Vessel Safety Regulations", a document arising out of the 1987 "Coast Guard Study into Fishing Vessel Safety". The regulations under consideration are comprehensive and pertain to all aspects of vessel design, construction and safety equipment aboard fishing vessels. The Division has stressed the need for Coast Guard to consult with Island fishermen on these new regulations.

This on-going consultation process has resulted in considerable changes to the proposed regulations and their enactment remains suspended pending further consultations early in 1992.

Staff of the Division continually monitor ship safety regulations, changes to the "Canada Shipping Act" and other proposed Department of Transport regulations which could affect Island fishermen.

MANAGEMENT MEETINGS

Staff of the Extension Division represent the Department on various industry committees which include: the District 22, 23 and 24 Scallop Advisory Committees, the District 24, 25 and 26B Lobster Advisory Committees and the Seaplants, Smelt, Eel and the Atlantic Bluefin Advisory Committees. These groups develop management proposals on an annual or biannual basis for consideration and approval by the Federal Minister of Fisheries and Oceans.

The Division maintains liaison with the Workers Compensation Board, agencies of the Canada Employment and Immigration Department, Customs and Excise Canada and the Federal Department of Transportation on matters affecting fishermen.

RESOURCE UTILIZATION DIVISION

David Younker - Manager
David Gillis - Biologist
Gerry Ridgeway - Economist
Shelley (Murphy) Clark - Home Economist
Phyllis MacKenzie /
Paula Hudson - Statistics

The Resource Utilization Division represents the interests of the P.E.I. fishery in management consultations carried out with the Federal government to develop fishing plans for various fish species. This Division promotes the maximum utilization of P.E.I. fishery resources, provides services to co-ordinate raw material supply with market demand, carries out a variety of promotional programs and develops and maintains statistical and market information to support the objectives of the Department.

Major objectives of the Division are:

- To develop a data base and to carry out social, economic and biological assessments in order to effectively represent P.E.I. in the management consultations carried out by the Federal Department of Fisheries and Oceans.
- To provide statistical information to the P.E.I. fishing industry.
- To promote the consumption of fish products.
- To work with the fishing industry and other related Departments and Agencies in developing new products for expansion and modernization of processing capability in order to increase the value of P.E.I. fisheries resources.

During the past year, the Division carried out activities under the second year of the three year Special Lobster Promotion program which is funded jointly by the P.E.I. Department of Fisheries and Aquaculture, the Federal Department of Fisheries and Oceans and the Atlantic Canada Opportunities Agency.

A brief description of the programs, projects and activities carried out by the Resource Utilization Division during 1991 is as follows:

MANAGEMENT

Staff of the Division continued to represent the Department on a number of species' advisory committees and working groups during the past year. These committees included those dealing with Atlantic groundfish, (AGAC) Gulf groundfish, Gulf snow crab, Gulf and northern shrimp and small pelagics (herring and mackerel). Working groups and special committees active in the last year included the NAFO Consultative Committee, and the Federal Provincial Atlantic Fisheries Committee (FPAFC) Working Group. These committees and working groups provide a forum through which the Minister of Fisheries and Oceans seeks advice from the fishing industry and the Provinces on the management of the various fisheries. Provincial representation in this process ensures that the interests of the Province in fisheries management issues are heard and that a vital flow of information is maintained to Provincial interests concerning the general state of the Canadian and world fisheries.

To ensure effective Provincial representation at the national and regional level, the collection and delivery of information required is facilitated through a series of local P.E.I. species advisory and working groups and through personal contact with the P.E.I. industry on an ongoing basis.

The following brief overview summarizes some of the fishery management issues which were addressed during 1991.

GROUNDFISH

Atlantic Cod

In 1991, the total allowable catch (TAC) for southern Gulf cod was reduced by 5,000 M.T. to 48,000 M.T. 50% of this decrease was absorbed by one fleet sector in the winter fishery off Cape Breton. The pattern of landings in the summer fishery in 1991 was similar to that of 1990. Catch rates in the spring and summer were lower than has been the norm, however, the fall catch rates were reportedly better than recent averages.

Among the various fleet sectors, landings by fixed gear vessels remained low. Mobile gear fleets were generally able to take their quotas, particularly those fleets less than 50' in length, which were seriously short of fish. The mobile fleet less than 45' used its full annual allotment by June. As a result of provisions of the Management Plan which come into effect when a stock is declining, temporary transfers to these vessels were substantially reduced in 1991 and were not made until late in the season.

The situation with these vessels triggered an in-depth analysis of options for the management of these fleets and their allocations in future years. Working groups struck for each fleet provided DFO with discussion points which were summarized in a report tabled in October.

In keeping with its plan to pursue a more conservative course of management for this stock, DFO has reduced the TAC a further 5,000 M.T. for 1992. This reduction will be absorbed by all users proportionately.

Additionally, DFO has offered to reallocate some 1,450 M.T. from selected Gulf-based fleets to the mobile fleets less than 50' provided an acceptable plan to "rationalize" can be worked out. Wider discussion of the options available to these fleets has not as yet resulted in any such plan.

Redfish

Redfish landings on P.E.I. remained strong in 1991, and were directed

largely into the year round production of fresh fillets. The Gulf Plant Delivery Program landed substantial amounts into Island plants in the fall period, providing an important alternative source of employment.

Landings of more localized species such as flounder, blackbacks and hake were on par with or slightly higher than recent years.

Dockside Monitoring

The Dockside Monitoring Program (DMP) was introduced widely into the P.E.I. groundfish fishery during 1991. The industry - owned company, Island Weigh, received substantial funding from CEIC in addition to the fees collected from Island fishermen and processors. Discussions are currently underway to modify this Program to ensure that all fishermen under the system are treated fairly and equitably across the entire Atlantic Coast.

HERRING

On Prince Edward Island, the herring fishery consists of a spring and fall season. In the spring, herring are used primarily for lobster bait, and to a lesser extent, in smoking operations located in New Brunswick. Spring herring, a migratory species, was relatively scarce this year and fishermen were able to sell their catch with assistance provided by the Department.

There are two primary resource areas in the fall fishery for Prince Edward Island fishermen: the Fishermen's Bank zone and the Western P.E.I. zone. To date, fall herring have been harvested mostly for roe extraction, and sales are dependent on the Japanese marketplace. The carry-over of roe inventories into 1991 in Japan reduced the demand for roe in the Fishermen's Bank zone and, as a result, fishermen only landed approximately one-third of the available quota. Processors in Western P.E.I. were able to secure sales primarily in New Brunswick and, as a result, the quota was filled in that area.

MACKEREL

The mackerel fishery begins in May and continues into late October. Major concentrations of mackerel are found in the Miminegash - Tignish area; the Alberton, North Rustico, Savage Harbour area; and the North Lake area. Gillnets are used during the spring to harvest mackerel, and purse seine and handlines are used later in the season when mackerel are schooling.

The lack of a consistent supply of good quality mackerel is seen as a cause for the absence of development efforts for producing secondary mackerel products in the industry. Once the industry feels reasonably assured of a long term, consistent supply of mackerel, it will feel justified to commit the financial and human resources for product and market research and development necessary for the long term viability of a mackerel industry. It is felt that a consistent supply of good quality mackerel at competitive prices will provide the incentive to processors to make the necessary investment.

PELAGICS DEVELOPMENT

A Herring and Mackerel Development Committee consisting of fishermen, processors and representatives from the federal and provincial governments was established by the Department of Fisheries and Aquaculture to further develop the herring and mackerel fisheries. Low prices and limited markets have hindered the development of these species. World prices for finished products are often below P.E.I.'s cost of production and this makes it difficult for Island fishermen and processors to compete in world markets.

At the recommendation of the Committee, the Department contracted Harald Norve, a consultant from Halifax, N.S. to identify market opportunities for food grade herring and mackerel. Some market opportunities have been located, but harvesting and processing infrastructures require further development if P.E.I. is to successfully produce larger quantities of value-added products. These are presently being identified.

The consultant is also preparing a long term development plan which will assist the herring and mackerel industry to expand. This strategy addresses the lack of processing capacity during the spring lobster season, and the changes needed to have a combined food/roe fishery during the fall. Handling and storage methods on board fishing vessels, ice supply, unloading systems, freezing, cold storage, and transportation logistics are being addressed in this ongoing development plan.

TEST PRODUCTION/ PRODUCT UTILIZATION

(i) Fish Emulsion - Prefeasibility - Funds were allotted to Gallant Fisheries Ltd. of Souris to secure advice and guidance from an authority in this developing segment of the industry. This input has been used by this company to move toward commercial production of fish emulsion products.

(ii) Lobster Holding - The Department assisted Polar Fisheries Ltd. to construct a saltwater reservoir to hold and purge live lobsters. Purged lobsters are now used in producing a new value added product at this facility.

(iii) Herring Roe - Projects were entered into with Tignish Fisheries Co-op Association Ltd., Acadian Fishermen's Co-op and Polar Seafoods Ltd. to purchase equipment to enter into roe production and other value added herring products.

(iv) Lobster Equipment - A project was entered into with Beach Point Fishermen's Co-op to enable this Company to obtain the necessary freezing facilities to produce value

added lobster products.

(v) Vacuum Packaging - A project was entered into with Babineau Fisheries to package processed lobster products with a vacuum packaging machine. This equipment will increase the production of processed product.

(vi) Cultured Mussels - A machine to debyss cultured mussels was cost-shared with East River Shellfish. The project will increase the processing of cultured mussels on P.E.I.

(vii) Lobster Development - Funding was made available to Lobster Specialties Ltd. to develop and test market a new processed lobster product. Product development was carried out by the Food Technology Centre.

(viii) Snow Crab Paste - The Department entered into a project with Abegweit Seafoods to further develop snow crab paste. The project utilizes an ingredient which was previously discarded to produce a value added product.

(ix) Herring and Mackerel - Assistance was provided to West Shore Fisheries to package herring and mackerel bait in a form convenient to lobster fishermen. The new packaging could increase sales of locally caught herring and mackerel.

PROMOTION

SPECIAL LOBSTER PROMOTION PROGRAM

1991 marked the second year of the three year Special Lobster Promotion Program funded jointly by the P.E.I. Department of Fisheries and Aquaculture, the Department of Fisheries and Oceans (through the P.E.I. Cooperation Agreement on Fisheries Development) and the Atlantic Canada Opportunities Agency. Program delivery for the $300,000 annual program is the responsibility of the Department of Fisheries and Aquaculture.

Following is a summary of the activities that were carried out in 1991.

Market Research

The industry agreed that market research should be a priority under this program. Two initiatives were undertaken: (1) Preparation for research on the Japanese market and (2) Quantitative research on seafood sales in the U.S. market utilizing the services of SAX Maritime Associates. This work was undertaken on a cost-shared basis with the Province of N.B.

Promotional Materials

Promotional materials (consumer brochure, trade brochure and posters) were translated into the Japanese and German languages for increased promotional efforts in these respective countries.

As well, quantities of materials were forwarded to selected Trade Commissioners throughout the world to assist in their efforts to promote lobster products.

Advertising

(i) The Department participated in the Canadian Seafood Advisory Council's media tour to P.E.I. during late May and early June. Twelve food writers participated and followed up on the tour with articles in their respective magazines and newspapers.

(ii) The advertising campaign undertaken by the Island firm, Polar Productions, was supported and lobster advertisements were placed on radio stations from Quebec to British Columbia.

(iii) Advertisements were prepared and placed in the Seafood Leader, a trade magazine distributed world wide, the Atlantic Chamber Journal, and the Confederation Center of the Arts brochure.

Trade Shows

Emphasis on participation at trade shows centered on attending traditional shows to reinforce present contacts as well as attending shows in new locations.

(i) Boston Seafood Show - a joint effort in cooperation with the P.E.I. Development Agency was undertaken in March where eight Island processors displayed their products. A chef, Richard Chaisson, from the Culinary Institute was present to demonstrate the preparation of speciality lobster products.

(ii) Ohio Grocers Show - The Department participated in the Ohio Grocers Show in September 1991, in Columbus, Ohio. This show was attended by a representative of the P.E.I. Seafood Processors Association and Chef Hans Anderegg from the Culinary Institute.

(iii) Anuga - Support was provided for the Province's participation in this large international food show in Cologne, Germany. Local processors and marketing representatives in attendance, presented lobster products to international buyers. Chef Hans Anderegg was in attendance to prepare samples for demonstration.

(iv) Seafare Southeast - Industry representatives, staff of the Department and Chef Graham Taylor from the Culinary Institute attended this show in October, 1991 in Miami, Florida. Lobster products were promoted and trade leads established.

Product Development

Visits to the Province by packaging firms were initiated by the Department and work is underway, in conjunction with the P.E.I. Seafood Processors Association and the Food Technology Center, on various speciality lobster products.

New packaging possibilities will be tested in conjunction with the industry in the upcoming lobster season.

Product Demonstrations

A presentation was made in Montreal, in conjunction with the P.E.I. Seafood Processors Association and the Culinary Institute, to visiting executives of a major Japanese restaurant chain who will be introducing lobster to their menu.

Joint Industry Initiatives

This program provided 50% assistance to a maximum of $5,000 for processors to undertake projects to improve market access. A number of projects were undertaken with individual firms in advertising, attendance at trade shows, other special marketing missions and related activities.

Special Promotions

(i) C.A.L.P.A. - Special promotions were undertaken with the Canadian Atlantic Lobster Promotion Association (CALPA) and the other Maritime Departments of Fisheries during the year.

The special McLobster promotion was financially assisted during the summer months and a special lobster presentation at the new Canadian Embassy in Japan was undertaken in the fall.

(ii) Southern California Packaging Project - This project is a follow-up to the lobster study carried out jointly with N.B. last year. This work will help identify the proper packaging requirements and needs of this marketplace.

(iii) Billingsgate Fish Co. Ltd. - This project was a joint effort between the Maritime Provinces to promote lobster products in Alberta in conjunction with the Billingsgate Fish Co. This was the second year of the project and results were superior even to those achieved during the 1990 campaign.

(iv) Julie Watson - Julie Watson, a P.E.I. based food writer, was sponsored to attend the International Culinary Professionals Convention in Vancouver, B.C., where special media kits were distributed to major food writers and contacts were made for additional promotional activities.

(v) Lobster Claw Tags - Special lobster claw tags to identify P.E.I. lobsters were designed based on the industry requirements. A quantity was purchased for distribution and initial testing in the 1992 lobster season. These tags contain the lobster logo on one side and cooking instructions on the other.

(vi) Celebrity Cook-Off - This event was organized in conjunction with the Extension Division and carried out in Summerside, with celebrities preparing lobster products for promotional purposes. Wayne Rostad from CBC's "On the Road Again" participated in this event.

PROMOTION (General)

Retail Trade

The "Seafood Bulletin", a quarterly newsletter for seafood retailers on P.E.I. was published and distributed to retailers.

TRADE SHOWS

APEX Food and Beverage '91

This show was held in Moncton, N.B. on September 22 - 23. Our Department, in conjunction with the N.B. and N.S. Departments of Fisheries, staffed a Maritime fisheries booth.

The Royal Agricultural Winter Fair

In conjunction with the P.E.I. Potato Marketing Commission, our Department participated in the Royal Agricultural Winter Fair in Toronto on November 8 - 10th, 1991

SEAFOOD AWARENESS

Summer Promotional Programs

These programs included seafood demonstrations on the car ferries and at Island festivals, and the "Out of the Sea and Over The Coals" barbecue demonstrations. These programs were carried out June through August and in total, approximately 10,000 people participated.

Canadian Seafood Advisory Council

The Department contributes financially to and is a member of this national organization. This organization carries out a national promotion campaign for Canadian seafood including such programs as the Neptune Awards and November Fish and Seafood Month.

Promotional Material

(i) "This Week on P.E.I." - In cooperation with P.E.I. seafood retailers, a two page, full color advertisement and locator map was inserted in the "This Week on P.E.I." publication which is utilized both by tourists visiting P.E.I. as well as Island residents.

(ii) Restaurant Menu Book - In cooperation with the P. E. I. Department of Agriculture, a one page, full color advertisement was placed in the Island Restaurant Menu Book.

(iii) General - Promotional materials were developed/ reprinted and used in an effort to gain increased exposure for seafood. These materials were distributed in response to numerous requests from retailers, consumers and educators.

(iv) Telegraphics Computer Terminals - Information on the location of seafood outlets, dates of fishery festivals and the schedule for the Department's promotional programs was made available to the public through computers

set up at strategic locations throughout P.E.I.

June Seafood Days

The 1991 campaign was coordinated by the Maritime Departments of Fisheries and consisted of a culinary competition and a foodservice consumer contest.

The campaign was launched in Moncton, New Brunswick on June 5th, with a culinary competition.

A foodservice consumer contest was carried out at participating restaurants and consumers were eligible to win various prizes.

In support of the campaign, promotional materials such as quantity recipe cards, menu inserts, menu clips and posters were produced and made available to the foodservice industry. Consumer recipe cards were also produced and distributed to the public.

Twenty-seven demonstrations were carried out at grocery stores in the Charlottetown and Summerside areas.

Lobster Festival

A special promotion sponsored by the Maritime Departments of Fisheries was carried out with the Wandlyn Inns throughout the Maritimes. The promotion ran from June 1st to August 31st with all Wandlyn Inns participating. The campaign consisted of a consumer contest to encourage customers to order lobster. Incentive prizes were offered to the Wandlyn Inn with the most sales. A prize was also offered to the Wandlyn Inn with the best seafood lobby display.

STATISTICS AND MARKET INFORMATION

The primary function of the statistics section is to acquire, compile, and distribute fishery information to government departments and agencies, as well as to the general public. The data collected and reported includes fish landings and values (all species), seafood production, exports, prices, and other related information. Statistical data available for public distribution can be found in the following publications.

Fish Price and Market Report

This weekly report provides fish price information for the P.E.I. Atlantic Region, and Eastern United States markets. The data is collected through personal contact with representatives of the Island and regional fisheries, along with weekly contact with the National Marine Service in Boston, Mass. The report is published in local newspapers,the Sou'Wester, Le Journal des Peches, and distributed to individuals via a mailing list.

Statistical Review

The annual publication, the Fisheries Statistical Review, provides a historical overview of P.E.I.'s fishing industry. It contains information on landings and values, prices, exports, and other related fishery data.

Seafood Products Directory

This directory provides general information on federal and provincial licensed processing plants, e.g. name, location and contact for the plant, products processed, number of persons employed, geographical location and a glossary of the various species of fish found in the water surrounding P.E.I.

This publication is distributed upon request and is targeted as a buyer's guide.

The Fishing and Aquaculture Industry of P.E.I.

This four page pamphlet provides general information on fishing as well as details on the major species, harbours, ports, vessels, processors and individuals in the fishing and aquaculture industry in P.E.I. Updated annually, this booklet is available in both English and French.

Fisheries Statistics Pamphlet

This publication acts as a quick reference guide for current statistical data. Updated annually, the pamphlet offers general information on the numbers of people involved in the fishery, fish landings and values by district and species, as well as an average price by species.

Bluefin Tuna Fishery

The tuna pamphlet contains general information on the tuna fishery together with statistical information such as the number of landings by port and province, as well as the average weight per fish, per year.

Table 1, on Page 22 is a summary of the number of tuna landed by port for the past five years.

284 tuna were landed by P.E.I. fishermen out of Nova Scotia ports during the 1991 fishing season.

Snow Crab

This Division monitors snow crab landings throughout the season and management input is partially based on the data collected.

The 1991 snow crab season opened on April 29th and closed on May 11th. The allotted quota was set at 600 metric tonnes and a preliminary landings indicate this quota was filled. Fishermen received $1.05 per pound, on average, an increase of 23% over the 1990 price of $.80 per pound.

RESOURCE MONITORING

The Resource Monitoring Program (RMP) monitors fish landings at P.E.I. ports on an ongoing basis. Basic industrial characteristics of the catch, primarily individual lengths, are recorded in a structured manner. The information is used to (1) identify and monitor, quantitatively, long term trends in landed sizes; (2) assist in the formulation of Provincial positions on some key management issues; and (3) provide descriptive statistics with which to facilitate the development and/or expansion of the P.E.I. fishery.

The Resource Monitoring Program has been in existence since 1979,

over which time the range of species and gear types covered by the program has grown. A total of 50,124 fish were measured during 1991. Table 2, on Page 22, summarizes data available for a selection of gear types covering the period from 1983 to 1991.

Specialized sampling programs are incorporated into the RMP as the need arises. During 1991, special at-sea sampling programs were also undertaken for lobster and dogfish.

SPECIAL PROJECTS AND STUDIES

(a) Lobster Carapace Size - In response to concerns expressed by the P.E.I. lobster industry, a study was designed to outline the relationship between lobster carapace sizes in landings and the resultant mix of products and rate of production in P.E.I. processing plants. A model was developed from a broad sample of canner lobster landed in 1991 on P.E.I. The results have been used to assess, in quantitative terms, the impact of changes to the minimum carapace size on the production of processed lobster products on P.E.I.

(b) Chitin Yield Study - Samples of shell waste from lobster, snow crab and rock crab processing operations were collected throughout the season. Yield determinations of chitin, a marketable constituent of shell, were done (under contract) by the P.E.I. Food Technology Centre. Results will be used to evaluate the potential for producing shell meal for chitin extraction as a by-product in the P.E.I. fishery.

(c) Sea Urchin Survey - Preliminary studies into the feasibility of a commercial urchin harvest on P.E.I. over the last several years pointed to the need for a resource inventory survey. In 1991, funds were provided by this Department and DFO to the P.E.I. Fishermen's Association to fund this work. Technical assistance was also provided by this Department. The results will be used to further the development of this potential fishery in the coming season.

(d) Herring - A demonstration project was undertaken in conjunction with the National Research Council, the P.E.I. Fishermen's Association and the P.E.I. Food Technology Centre to determine the most appropriate method of storing herring on board vessels and the most appropriate method of unloading to produce quality products. Samples of herring were obtained from Souris vessels using slush ice in tanks, and from vessels in the Beach Point area from vessels storing herring in bulk. Various tests were carried out and a report was completed summarizing the results.

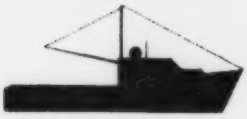
(e) A number of internal economic analysis were prepared throughout the year. These studies examined a variety of economic issues important to the fishing industry and processing sector.

TABLE 1
SUMMARY OF NUMBER OF TUNA LANDED BY PORT

Port	1987	1988	1989	1990	1991
Sea Cow Pond	--	5	8	6	4
Tignish	33	98	38	20	8
North Rustico	--	--	--	--	--
Savage Harbour	--	--	--	--	--
Morell	2	--	--	--	--
Naufrage	4	--	--	--	--
North Lake	7	--	1	--	--
Annandale	1	--	1	--	2
Graham's Pond	--	--	1	--	--
Beach Point	--	--	10	1	--
Murray Harbour	--	--	1	--	1
Souris	--	--	3	--	--
TOTAL	47	103	63	27	15

TABLE 2
AVERAGE LANDED LENGTH (cm, total) FOR SELECTED FINFISH SPECIES AND GEAR TYPES AT PRINCE EDWARD ISLAND PORTS, 1983-1991

SPECIES	GEAR TYPE	1983	1984	1985	1986	1987	1988	1989	1990	1991
Atlantic cod	Trawler, > 65'	57.2		58.8	59.9					
	Trawler, < 65'	54.7	51.6	51.0	49.2	48.2	44.7	46.0	49.9	50.0
	Dan/Scot seine	57.6	48.7	50.9	47.5	48.1	51.3	47.2		
	Pair seine	56.3	50.9	51.8	51.5	48.6	48.7	49.5	50.3	48.6
	Gillnet	60.4	61.4	54.9	58.2	54.4	54.5	54.4	56.0	59.9
	Longline	55.3	54.0	54.3	61.4	53.0		53.5		59.7
	Handline	53.4	54.9	52.0	50.0	49.2				
White hake	Trawler, < 65'	63.2	62.5	59.0	58.7	54.3	60.8		53.2	52.3
	Dan/Scot seine	67.4		60.6	61.5	57.4		62.9		
	Pair seine	62.9	62.5	61.1	63.6	55.9		60.1	57.4	60.2
	Gillnet	69.7	71.1	69.5	71.4	67.5	62.7	63.3	64.0	
	Longline	71.8	68.5	73.5	71.8	68.0		62.4		
	Handline	68.6	60.3	66.2	68.4	62.0				
Redfish	Trawler, > 65'	31.7	31.9	29.2	31.4	31.9	30.6	29.0	30.4	30.5
	Trawler, < 65'							27.0		28.8
American plaice	Trawler, < 65'	37.1	36.8	35.6	37.3	34.6	33.8	34.2	34.9	29.7
	Dan/Scot seine		37.9	38.1	37.1	33.9	33.8	35.3	35.8	
	Pair seine	34.7	35.4	36.0	37.1	36.2	36.4	35.0	34.8	36.4
	Gillnet							29.2		
Winter flounder	Trawler, < 65'	30.8	29.5	29.6	28.2	28.3	32.3		29.4	
	Dan/Scot seine								30.1	
	Pair seine	30.3	30.5	29.7	29.0	29.0	30.5	27.6	29.1	
Yellowtail	Pair seine						31.7			
	Gillnet							29.2		
Dogfish	Longline								80.0	
Herring	Gillnet	30.1	28.9	28.7	29.3	28.6	27.7	30.3	31.5	30.7
Mackerel	Gillnet	33.5	33.2	33.6	34.0	35.2	36.4	40.1	40.0	41.9
	Pelagic seine								38.6	36.1



PROCESSING AND QUALITY DIVISION

Lloyd Murphy - Manager
Lynn A. Wall - Processing Technician
Floyd Gavin - Processing Technician
Edith Kerr - Processing Technician

The role of the Processing and Quality Division is to ensure the maintenance of a consistent level of high quality in fish products, to both safeguard the health of the consumer and to enhance the marketability of P.E.I. fish products.

Two full time and two seasonal personnel act as the resource center for implementing programs directed towards the processing sector. The Division implements the P.E.I. Fish Inspection Act and Regulations, the Processors Quality Improvement Program and other related quality and development initiatives.

Activities undertaken during the twelve months ending December 31, 1991, were as follows:

FISH INSPECTION ACT

The P.E.I. Department of Fisheries and Aquaculture is responsible for inspection and monitoring the level of quality in fish and fish products processed and marketed on P.E.I. The Prince Edward Island Fish Inspection Act and Regulations authorize the Province to implement regulations to ensure seafood is purchased, processed and marketed under sanitary conditions.

Buying Licenses were issued to each buyer after the equipment in buying facilities and transport vehicles were inspected to assure compliance to the regulations under the P.E.I. Fish Inspection Act.

Processing licenses were issued to individuals and/or companies where establishments used for processing fish products passed inspection and were in compliance to the regulations under the P.E.I. Fish Inspection Act with regard to construction and operating criteria.

During the fishing season, all registered facilities were routinely monitored by Provincial Inspection Officers. The inspections were carried out to ensure operators were utilizing good manufacturing practices and that all operations were in compliance to regulations under the P.E.I. Fish Inspection Act. Inspection officers monitored the fish buying practices at all fish buying stations and worked closely with the Provincial Health and the Federal Department of Fisheries and Oceans in regard to the inspection of processing facilities where fish products were prepared for sale to the public.

PROCESSORS QUALITY IMPROVEMENT PROGRAM

The Processors Quality Program provides financial assistance to registered fish processing plants located on P.E.I. to upgrade their facilities in order to comply with the P.E.I. Fish Inspection Regulations and to assist plant personnel to follow the schedule of Good Manufacturing Practices. The assistance provided is 50% of completed expenditure to a maximum of $20,000 per plant.

Eligible items can include structural changes i.e.; accommodation of locker rooms for staff, adequate lunch rooms, additional washrooms, ceiling, walls, drains and floor in processing rooms and/or new equipment that will improve or maintain quality products during processing. The services of professionals to develop quality improvement plans are also eligible.

In order to qualify for assistance, the plant must submit an overall quality improvement plan outlining long term objectives and projects which will be implemented. Department personnel meet with the contact person of the company and discuss their proposal. The eligible initiatives are determined and upon final Departmental approval, the project can be started. Progress inspections are performed during the course of renovations and a final inspection is done when the project(s) is completed.

The registered processing facilities that participated in the Processors Quality Improvement Program in 1991 were as follows:

Island Saltfish Inc.	- DeSable
Beach Point F'mens Coop Assn. Ltd.	- Beach Pt.
Polar Fisheries Ltd.	- Summerside
Georgetown Packers Ltd.	- Georgetown
Atlantic Aqua Farms Inc.	- Orwell
Howards Cove Seafoods Ltd.	- Howards Cove
Wendell Graham (1981) Ltd.	- Gaspereaux
Babineau Fisheries Ltd.	- Morell
International Seafoods Ltd.	- Morell
Eastern Kings Seafood Ltd.	- Beach Point
Acadian F'mens Coop Assn. Ltd.	- Abrams Village
Alberton Fisheries Ltd.	- Alberton
MacKinnons Lobster Pound Ltd.	- Charlottetown
Crabby's Seafoods	- Wood Islands
South Shore Seafoods	- Rosebank
Keeping & MacKay Ltd.	- Beach Point
Milligans Fisheries Ltd.	- Naufrage
Atlantic Fish Specialties Ltd.	- Parkdale
North Lake Fishermens Coop	- North Lake

LICENSING

The Licensing system for 1991 maintained improved quality compliance. Detailed recordings of all inspections and provisions for eligible buyers to receive licenses has been compiled. Licenses were issued according to species purchased and buying station locations. Inspection controls were maintained to assure that buyers achieved the quality standards for each species group. All licensing data is computerized and revised on a regular basis. Listings and inspection criteria for 1991 are presently available on the

Departmental Computer System.

The Fish Buyers Licenses are broken down into four categories.

(1) Crustaceans
(2) Groundfish
(3) Pelagic
(4) Molluscs

Buyers can purchase those licenses applicable to their operations.

Fish Peddler Permits were issued to those individuals who were involved in this aspect of the industry. Permits were required by those who participated in peddling fishery products throughout the Province.

TOTAL NUMBER OF BUYING LICENSES ISSUED IN 1991: - 442

CRUSTACEAN LICENSES	- 184
GROUNDFISH LICENSES	- 91
PELAGIC LICENSES	- 88
MOLLUSCS LICENSES	- 79

TOTAL NUMBER OF PROCESSORS LICENSES ISSUED IN 1991: 87

TOTAL NUMBER OF PEDDLERS PERMITS ISSUED IN 1991: 22

TOTAL NUMBER OF LICENSES ISSUED FOR 1991: 551

Table 1, on page 25 shows graphs for Yearly License Issuance for 1988 - 1991 and Licencing Analysis for 1991 Season.

IN-PLANT TRAINING

The development and implementation of training courses for fish processing establishments was continued in 1991.

Training was made available to several Island processors in 1991 to upgrade existing operations and provide technical assistance where required and/or requested. Implementation of Quality Control Programs with emphasis placed on the required Record Keeping Practices, played a major role in the In-Plant Training aspect.

Quality Awareness Seminars were designed and implemented for individual operations requiring training in the pre-established areas. Seminars were held Island-wide for those operators who requested assistance. Audio visual and written materials were presented and made available.

Seminar Topics were offered in the following areas:

1. In-Plant Sanitation
2. Personal Hygiene
3. Good Manufacturing Practices (G.M.P.s)
4. Quality Control Awareness
5. Instructional Skills in the following areas:

A. Filleting, skinning, trimming etc. (groundfish, & pelagic species)

B. Roe Extraction

C. Fishing Methods

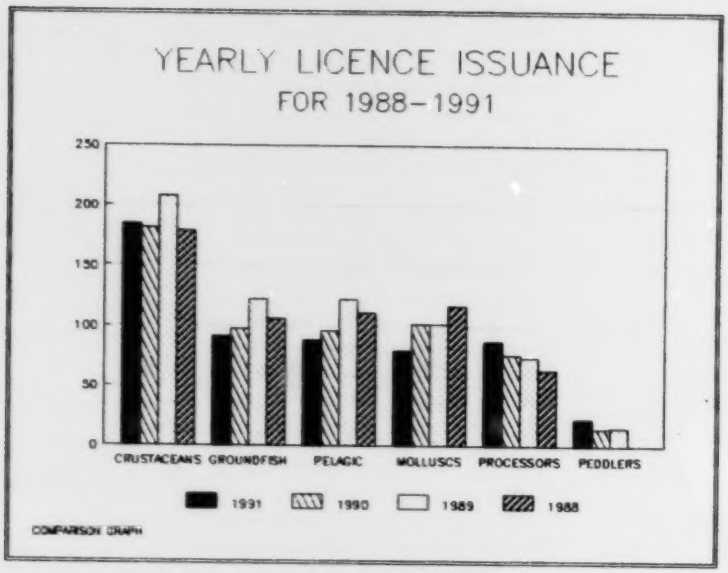
D. Salting Fish

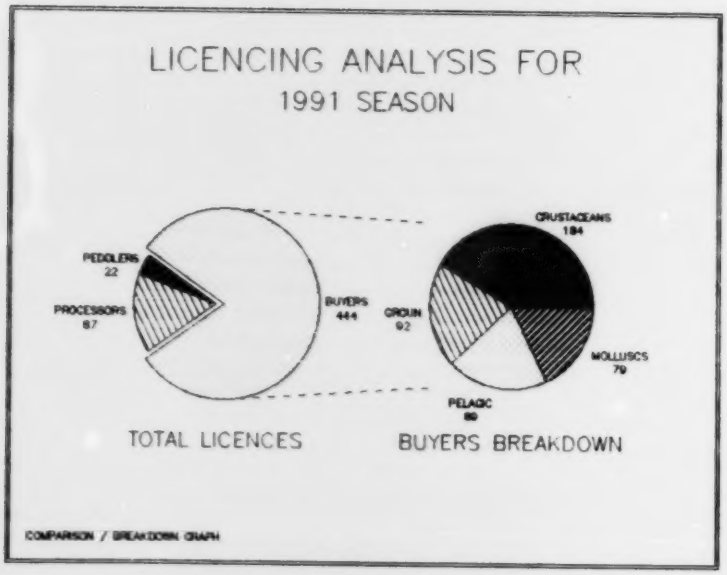
E. On-Board Handling of the Product

Assistance was provided to Island Trout Growers on methods of preparation of the product for the marketplace.

On-going preparation of training materials assures that the industry is up to date on technological changes and advancements.

TABLE 1


YEARLY LICENCE ISSUANCE
FOR 1988–1991
250
200
150
100
50
0
CRUSTACEANS
GROUNDFISH
PELAGIC
MOLLUSCS
PROCESSORS
PEDDLERS
1991
1990
1989
1988
COMPARISON GRAPH


LICENCING ANALYSIS FOR
1991 SEASON
PEDDLERS
22
PROCESSORS
87
BUYERS
444
CRUSTACEANS
184
GROUN
92
MOLLUSCS
79
PELAGIC
80
TOTAL LICENCES
BUYERS BREAKDOWN
COMPARISON / BREAKDOWN GRAPH

FINANCIAL SERVICES AND SPECIAL PROJECTS BRANCH

Donald Judson, Director
Randy Francis, Administration Officer

The Financial Services and Special Projects Branch provides financial services to various firms and individuals involved in the commercial fishery. Special projects that impact on the P.E.I. fishery are prepared and implemented as needed. Current staff includes the Director and one administration officer. Casual employees are utilized as required.

Fish processors, moss harvesters, fishermen and service industries; e.g. boat builders, are assisted in a number of aspects related to financial matters that will lead to the development of their respective enterprises including applications for development grants.

Programs currently implemented include the Fishermen's Groundfish Program, Equipment Demonstration Program, Technology Advancement Program and Longliner Program. The Commercial Fishermen's Investment Incentive Program concluded April 1, 1987, but continued to accept certain applications until February 26, 1988. Annual claims will be processed until 1992/93. The Fleet Development Program was terminated March 31, 1991, having received no applications during 1990/91. The Fishermen's Capital Investment Fund Program came to a close in 1989 and by 1991 only two individual funds remain. Support is provided to the fish processing sector by assisting in preparation of financial projections for new developments.

The Branch is also responsible for Computer and Information Systems within the Department. As Department Computer Coordinator, the Administration Officer oversees computer related activities including planning for efficient use of technology, providing technical support to management and staff, coordinating staff and training activities, establishing and maintaining standards, coordinating maintenance of systems and hardware, and monitoring and evaluating resource use. The Coordinator also represents the Department on Inter-Departmental committees involved in the planning and use of computer technology and information systems within Government.

Activities carried out during the year included the completion of a Department-wide on-line information system for managers, the addition of the Department to the Government's Financial Information System, upgrades to the Department's Computer Access Center, and the involvement of staff and managers at training sessions. Increased use of computer systems by management and staff has improved efficiency of internal operations and service to clients.

The Director represents the Department on a number of intra-provincial and Federal/Provincial committees. The Director also provides support service to several committees resulting from the five year Canada/P.E.I. Co-operation Agreement on Fisheries Development. These include the coordinating committee, and sub-committees on management information, program review, public information and environmental issues.

Activities undertaken during the twelve months ending December 31, 1991 follow:

FLEET SECTOR STUDIES

A nearshore (middle distance) fleet of approximately thirty-three boats evolved during the period 1983 to 1990. These boats operate principally in the groundfish and crab fisheries. The need to have appropriate data and information useful in determining future development policy led the Department in 1990 to undertake a profile study of the closed deck fleet of vessels in the 41 - 48 foot length overall range.

All decked boat owners were contacted and the majority have participated in the study. A report entitled "Operational Performance of the P.E.I. Decked Vessel Fleet" has been completed and forwarded to the participating boat owners. Table 1, on Page 29 shows the average costs and earnings of the three vessel types based on the 1988 fishery. The types of vessels are grouped by the fishery in which they are primarily engaged. Some vessel owners also operate a second lobster vessel which was included.

In 1991, a cost and earnings review of the inshore fleet was initiated to obtain data that would fairly present the economic position of the fleet of approximately 1,500 multipurpose boats. A representative sample of fishermen boat owners were contacted. Approximately half of those contacted participated in the review and provided data based on the 1990 fishery. Data and information is currently being compiled and will be made available to the participating fishermen.

FISHERMEN'S GROUNDFISH PROGRAM

Concern over the decline in groundfish landings on P.E.I. led the Department to undertake a comprehensive study of the inshore groundfish fleet in 1988. Based on information contained in the study, it was determined that there was a need to assist inshore vessel owners to keep pace with technological changes in groundfish harvesting methods. The Fishermen's Groundfish Program, initiated April 6, 1988, provides conditional grant assistance to inshore vessel owners to purchase a number of capital items related to groundfish harvesting. Redfish equipment was included as an eligible item during the period April 12, 1989 to June

30, 1990. Financial assistance, by way of conditional grants on eligible items, is provided to groundfish fishermen at a level of 35% of the capital cost to a maximum grant of $7,500 per fisherman.

During the period from April 6, 1988 to December 31, 1991, the Department approved 485 applications for assistance on 743 eligible items for a total of $792,622. For the twelve month period ended December 31, 1991, 108 applications were approved for assistance on 126 items for a total of $100,848. Following approval, some fishermen did not proceed and withdrew their applications, while others downscaled their projects by eliminating certain items or purchasing less expensive items.

Table 2, on Page 29 is a summary of approved conditional grants by eligible item, total capital cost and total conditional grants approved from initiation of the program to December 31, 1991.

Three hundred and sixty-nine fishermen who completed their projects on 482 items during the period from April 6, 1988 to December 31, 1991, received $464,944.18 in conditional grants. For the twelve month period ending December 31, 1991, 93 fishermen completed projects on 107 items and received $74,291.56 in conditional grants. Table 3, on Page 30 is a summary of Conditional Grant payments made under the program to December 31, 1991.

The average conditional grant to fishermen for the program to date is $1,260.01 for an average of 1.31 items. The average conditional grant per item is $964.61.

The Department is monitoring participation in the groundfish fishery by those that received conditional grants under the program. A very high percentage of fishermen operated in the groundfish fishery in 1989, 1990 and 1991. Several who did not harvest groundfish returned unearned portions of their conditional grants.

FISHERMEN'S INVESTMENT INCENTIVE PROGRAM

The program was initiated on May 24, 1983 and having reached its objective of assisting during periods of high interest rates, came to a close April 1, 1987. Applications for loan amounts actually drawn down from lending agencies prior to April 1, 1987 were accepted up to February 28, 1988. Approved applications on file continue to be maintained for interest rebate claims for up to five years or until the loan is paid out whichever is the lesser.

Over the life of the program, 779 applications were received. A total of 667 were approved on a loan base amount of $10.1 million.

Claims will continue to be received and processed until 1992/93 on outstanding active files. As at December 31, 1991, 90 files remained active. Table 4, on Page 30 shows details of claims paid.

EQUIPMENT DEMONSTRATION PROGRAM

The Equipment Demonstration Program was initiated May 10, 1990. The Department, in an effort to keep P.E.I. fishermen up-to-date with technology, will assist fishermen to assess the merits of specific electronics, gear and/or equipment in a particular fishery. Items that are deemed to have potential application to the P.E.I. fishery are purchased or leased by the Department and are evaluated or demonstrated by interested fishermen. Equipment under approved projects is provided to fishermen by lease agreement. Two scanning sonars were purchased by the Department and leased to fishermen operating out of Fortune and Tignish in 1990. These sonars are currently being evaluated in the mackerel fishery for detection of mackerel schools below the surface of the water and to determine school size. Success was reported in 1991 as to potential value to this fishery.

In 1991, four Icelandic computerized jigging machines were purchased by the Department for use in the groundfish fishery. A fisherman operating out of North Lake leased two of the machines to evaluate their efficiency in local groundfish stocks. A fisherman in Tignish was interested in evaluating two machines in the North Cape area, however, time did not permit installation prior to closure of the fall fishery. The trials carried out at North Lake showed the ease of operation of the units and their ability to catch groundfish, however, the reduced stocks led to relatively low landings compared to the initial cost of the units. One fisherman can operate up to three machines easily depending on the catch rates. This project looks promising and when operated for a full season in 1992, the net economic returns can be evaluated.

TECHNOLOGY ADVANCEMENT PROGRAM

The Technology Advancement Program, initiated May 10, 1990, is designed to assist fishermen who have ideas that may be beneficial to the fishery. Assistance is provided to fishermen on projects of a new or innovative nature and can be from a broad range of interests including vessels, gear and equipment, electronics, harvesting techniques or stock assessment. The level of assistance is 50% of the approved cost of individual projects to a maximum incentive of $10,000. Proposals are prepared by fishermen and forwarded to the Department for approval. Projects approved under this program to date are as follows:

(i) Scallop Bed Exploration - Seven North Lake scallop fishermen explored non-traditional grounds for potential scallop beds in the Cable Head to East Point area - July 1990.

(ii) Large Mesh Trials - An Annandale fisherman tested 7$_{0}$ and 8$_{0}$ mesh gill nets to

determine catch rates and average size of groundfish landed - September 1990.

(iii) Norwegian Groundfish Seine Evaluation - Two Souris fishermen operating decked boats compared the fishing ability of a Norwegian Pair Seine with a currently used Danish Seine - September 1990.

(iv) Dogfish Harvest Trials - A fisherman in each of two ports, Naufrage and North Lake used a range of gear types to evaluate catch rates for dogfish - September 1990.

(v) Stimpson Clam Exploration - A Fortune fisherman using a "dry" clam dredge was assisted to explore for Stimpson clam beds in the Milne Bank area - November 1990 and September 1991.

(vi) Hydraulic Moss Rake Cleaner - An innovative machine to clean Irish Moss rakes was constructed by a Miminegash area Irish Moss harvester and evaluated on his boat for ease of operation and efficiency - March 1991.

(vii) Swordfish Harpoon Exploration - A Murray River fisherman outfitted his boat for exploratory fishing, using the harpoon method in swordfish District #4 - July 1991.

(viii) Flounder Traps - A number of Maine style flounder traps were constructed to test catch rates of flounder in the Fishermens Bank area during the 1992 season - December 1991.

(ix) Cod Avoidance Trawl - A decked boat owner from Souris was approved to evaluate the potential benefit of a modified flounder net for avoidance of cod by-catch - September 1991.

(x) Caplin Seine - A Tignish fisherman constructed a seine for caplin fishing with catch rates assessment to be undertaken in the 1992 summer caplin fishery - November 1991.

(xi) Underwater Video Camera - A Lower Montague fisherman purchased an underwater video camera to view the sea bottom and conditions for flounder concentrations.

LONGLINER PROGRAM

The Province has access to a groundfish allocation in the Gulf of St. Lawrence for fish harvested by fixed gear methods. The longliner program was initiated on May 10, 1990 to assist P.E.I. fishermen in upgrading closed deck vessels with fixed gear machinery, equipment and overboard gear to enable greater access to middle distance groundfish stocks in the Gulf. Assistance is available on eligible items to equip decked vessels to operate in the longline fishery. The Department may provide an incentive of 50% of the eligible capital cost to a maximum conditional grant of $20,000. While no applications were received in 1990, two vessel owners were approved in 1991. One vessel was fully equipped with automatic baiters, hauler and gear storage units and operated in the 1991 groundfish longline fishery. The second owner is currently acquiring gear to be used in the 1992 fishery.

MARINE PLANTS RESEARCH

Non commercial seaplants are threatening moss beds on P.E.I. A three year proposal was developed in cooperation with the seaplant industry to research the nature and extent of the problem. The Department of Fisheries and Aquaculture signed an Agreement with the West Prince Industrial Commission to field a research team in cooperation with the Marine Plants Research Station at Miminegash, during the period June to November 1991. The team surveyed selected beds in the Miminegash, Tignish, Fishing Cove and North Lake/Naufrage areas to determine seaplant species distribution and changes.

All Chondrus (Irish Moss) beds were sampled in moss districts 1 and 2 with Furcellaria concentrations noted in one area of the Pleasant View Bed. Other areas surveyed showed no significant changes in seaplants composition. The North Lake/Naufrage beds showed no significant change in species mix or abundance from previous studies in 1980, however, there is a trend to higher rates of Fucus, a non-commercial seaweed. The research work will be continued in 1992.

To coincide with the research project, the Department cooperated with Acadian Seaplants Ltd., to determine the degree of Furcellaria infestation in areas not covered by the Marine Plants Research Station field crew. Twelve beds in the area between Skinners Pond and Howards Cove were surveyed. Very low concentrations of Furcellaria were found. This information is used to plan marketing programs for 1992 by the three main Irish Moss buyers.

The Department of Fisheries and Aquaculture and the Department of Industry cooperated with Acadian Seaplants Ltd., Miminegash and Sheas Seaweed Ltd., Anglo Tignish in September 1991, to obtain mixed seaplants for test marketing for food use and as an organic fertilizer. Acadian Seaplants Ltd. purchased 165 tons of Chondrus/ Furcellaria mixture to re-establish the international market for this particular mix. Sheas Seaweed Ltd. purchased 125 tons of Chondrus/ Fucus mixture as base material to develop and test market organic fertilizer. Trial product has been prepared by two firms, Les Enterprises J.S. Aubin Gallant Enterprises Ltd. in Egmont Bay and Ocean Seaweed Ltd. in Naufrage for evaluation by organic fertilizer packaging and distribution firms. A high volume, lower value product using currently non commercial seaplants shows promise.

TABLE 1
AVERAGE RECEIPTS, EXPENDITURES AND NET RETURNS BY VESSEL TYPE IN DOLLARS

	DRAGGERS	CRABBERS	SEINERS
Receipts			
Groundfish	34,585	-	92,224
Lobster	34,073	22,381	-
Crab	-	67,068	-
Other	2,825	15,473	-
Total	**71,483**	**104,922**	**92,224**
Expenditures			
Maintenance & Repair	8,642	5,602	8,013
Fuel & Oil	8,261	6,317	10,670
Bait/Ice	2,100	4,070	570
Food	1,625	1,696	2,494
Insurance	1,963	1,244	3,069
Haulout	400	1,056	404
Vehicle	3,172	3,378	3,599
Interest	6,384	8,019	8,753
Misc.	323	570	341
Total	**32,870**	**31,952**	**37,913**
Net Cash Return to Labour & Capital	38,613	72,970	54,311
Net Cash Crew Share	21,426	31,714	39,277
Net Cash Boat Share	17,187	41,256	15,034
Less Depreciation	14,367	12,086	18,935
Net Boat Earnings	2,820	29,170	3,901

TABLE 2
FISHERMEN'S GROUNDFISH PROGRAM

Summary - Approved Conditional Grants - 485 Applications

April 6, 1988 - Dec. 31, 1991

Eligible Items	No. of Items	Total Capital Cost ($)	Total Conditional Grants Approved ($)
Permanent Deck	1	2,000	700
Fishhold	-	-	-
Colour Sounder	237	485,547	169,941
Plotter	171	520,500	182,175
Longline Gear	73	145,515	50,930
Baiter	11	23,905	8,367
Bait Cutter	7	12,800	4,480
Longline Hauler	35	66,790	23,377
Other Longline Gear	11	10,595	3,708

Jigging Reels	2	12,600	4,410
Mobile Gear	34	149,713	52,400
Winch	57	323,415	111,845
Engine	24	467,600	36,000
Redfish Equipment	80	591,400	144,289
TOTAL	**743**	**2,812,380**	**792,622**

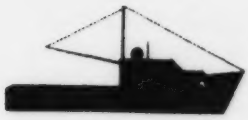
TABLE 3
FISHERMEN'S GROUNDFISH PROGRAM
Summary Conditional Grant Payments
369 Applications

April 6, 1988 - December 31, 1991

Items	No. of Items	Total Capital Cost ($)	Total Conditional Grants Paid ($)
Permanent Deck	-	-	-
Fishhold	-	-	-
Colour Sounder	186	334,865.86	117,785.80
Plotter	127	348,664.50	122,032.58
Longline Gear	32	40,646.81	14,226.36
Baiter	3	4,975.00	1,741.25
Bait Cutter	1	2,400.00	840.00
Longline Hauler	8	10,690.43	3,741.65
Other Longline Gear	3	2,087.42	730.60
Jigging Reels	1	9,240.00	3,234.00
Mobile Gear	26	92,035.75	32,212.51
Winch	38	185,082.10	64,778.75
Engine	9	170,412.00	13,500.00
Redfish Equipment	48	283,359.50	90,120.68
TOTAL	**482**	**1,484,459.37**	**464,944.18**

TABLE 4
FISHERMENS INVESTMENT INCENTIVE PROGRAM
SUMMARY OF CLAIMS PAID

Calendar Year	# Claims Paid	Total Paid ($)	Average Claim Payment ($)
1984	98	26,268.33	268.04
1985	223	92,610.17	415.29
1986	368	166,573.20	452.64
1987	399	194,021.90	486.27
1988	426	201,106.85	472.08
1989	358	184,742.76	516.04
1990	283	143,414.06	506.76
1991	175	83,343.22	476.25
TOTAL	**2,330**	**1,092,080.49**	**468.70**



AQUACULTURE BRANCH

W. Irwin Judson, Director

The Aquaculture Branch continued its active support to the aquaculture industry through 1991. Included in the Branch's primary responsibilities are programs and services for the oyster fishery, and mussel and finfish growers. As well, development efforts are supported in other species such as quahaugs, scallops, Arctic charr, salmon, eels and striped bass. The Branch also maintains a strong ongoing liaison with the Department of Fisheries and Oceans and other agencies in respect to aquaculture development, management and research.

The provincial Department of Fisheries and Aquaculture serves as the delivering agency for joint cost-shared programs in aquaculture under the COOPERATION Agreement on Fisheries Development. In the case of oyster enhancement, each of the federal and provincial departments delivers programs directly. Planning for all programs is carried out jointly by federal and provincial staff and associations representing the private sector. A review of the oyster program by Clyde MacKenzie, a recognized expert in shellfish enhancement, showed strong praise for the program and the implementing staff, and indicated certain components that could be further strengthened.

One of the major highlights of the Prince Edward Island aquaculture industry in 1991 was the penetration of the European market by the Prince Edward Island cultured mussel. Taking advantage of a shortage of European mussel production, particularly in Holland, several Island firms have begun supplying several tonnes of "Island Blues" weekly. In addition, the North American market for this product continues to grow and strengthen. Virtually all mussels are shipped fresh in the shell, with little progress toward value added products.

Domoic acid, a naturally-occurring toxin, continues to diminish as a concern of the shellfish industry. Although all areas of the province showed the presence of Nitzschia, the alga which produces domoic acid, very little toxicity was detected. One closure to harvesting was implemented (New London Bay) for the period of one month, and Malpeque Bay was closed for one week-end. These two areas were hit for the first time in 1991 with levels approximating the closure threshold. Little public concern over these closures resulted during the 1991 harvest season and the shellfish industry is becoming more adept at managing the problems caused by domoic acid.

For the first time since its beginnings, the mussel industry suffered a minor seed shortage. Although the growers enjoyed one of the heaviest spatfalls thus far, there were substantial losses to starfish predation.

The finfish development strategy currently in preparation will highlight and build upon Prince Edward Island's well-established hatchery system. Broodstock selection is a major component. In 1991 this sector made a large step forward in the construction of a highly sophisticated live transport unit, providing the capability of fingerling export throughout Atlantic Canada and beyond.

Oyster landings were down in 1991 caused in large measure by increasing resistance on the marketplace to the lower quality grades. Prices offered for standard and commercial grades fell below the threshold level to be attractive to fishermen, while demand and price were both very strong for the choice grade. There was no re-occurrance of the worm issue that gained media attention in 1990.

Scallop culture took on a new dimension in 1991. While the bay scallop remains in quarantine pending further information on the Perkinsus parasite, the Department supported three growers in development efforts with the sea (giant) scallop. The level of success in spatfall collection and growth achieved in the first year indicates that further development and assessment are warranted with this species.

While the culture of finfish and shellfish comprise the major objectives of the Prince Edward Island aquaculture industry, other opportunities exist as well. The development, supply and export of aquaculture equipment, training and expertise falls within the mandate of the Branch. Private industry has undertaken the development of a low head pump specifically for aquaculture use. The Branch assisted the government of the Northwest Territories in a pre-feasibility study for mussel culture.

A major highlight of 1991 was the decision to host the 1993 annual meeting of the Aquaculture Association of Canada. Accompanied by a trade show, this event has become the premier aquaculture meeting of the year in Canada. PEI offers a tight concentration of excellence in aquaculture which was instrumental in attracting the annual convention. Although several agencies are participating in hosting the event, a large share of the planning and co-ordination of the AAC '93 Host Committee rests with the Aquaculture Branch.

Much hard work and expenditure of effort having gone into the production of fish and shellfish, the aquaculture industry must now concentrate on improving quality and market service. It needs to improve co-operation among the producers and shippers to effect more orderly marketing and prevention of price wars.

ASSISTANCE PROGRAMS

The Aquaculture Branch is responsible for administering the following programs designed to

financially assist in the development of the aquaculture industry.

Mussel Production Expansion Incentive Program

The Mussel Production Expansion Incentive Program was designed to assist mussel growers, who had shown satisfactory results in their pilot projects, to expand. The program provids a 25% grant to a maximum assistance of $1,000 for specialized gear and equipment used in mussel production. In 1991 thirteen mussel growers participated in the program for a total grant assistance of $8,687.

A total of $42,128 in grant assistance has been provided to forty-five growers since the program began in 1978.

Finfish Production Expansion Incentive Program

The Finfish Production Expansion Incentive Program was designed to assist finfish growers, who had demonstrated viability in pilot scale operations, to expand. The program offers a 50% grant to a maximum assistance of $3,000 for buildings and equipment specifically for finfish culture. In 1991, two growers participated for total grant assistance of $4,697.

A total of $39,476 in grant assistance has been provided to fourteen finfish growers since the program began in 1987.

Aquaculture Loan Program

The Aquaculture Loan Program is available to mussel and trout growers possessing the necessary leases and licenses as well as at least two years pilot-scale experience who wish to scale up to a commercial operation. Initiated in late 1983 to provide the financial community with confidence in the aquaculture industry, the program has supported loans through the Prince Edward Island Lending Authority in the amount of $667,312. This includes loans totaling $27,030 that were approved in 1991.

On site inspection by personnel of the Department of Fisheries and Aquaculture and the P.E.I. Lending Authority is carried out to monitor the progress of mussel and finfish growers participating in the program.

Aquaculture Crop Insurance Program

The Aquaculture Crop Insurance Program, initiated in 1989, is open to Prince Edward Island growers of mussels, oysters, and salmonids who possess the necessary permits, licenses and leases and purchased aquaculture crop insurance from a recognized insurance company.

The assistance is in the form of a grant partially covering the premium cost paid by the grower for aquaculture crop insurance. The grant is paid at the declining rate: 30% of premium cost (maximum grant $3,000) in year one of the policy; 20% (maximum grant $2,000) in year two of the policy and 10% (maximum $1,000) in year three of the policy.

One mussel grower and one trout grower participated since the program began in 1989 for total assistance of $3,918. There was no activity in this program in 1990 and 1991.

Mussel Sandbag Substitution Program

The Mussel Sandbag Substitution Program was initiated in May 1991 to provide assistance to mussel growers wishing to change from the use of sandbags to sink longlines to the more environmentally acceptable concrete block. Four hundred plywood block forms have been constructed and are available on loan to mussel growers to be used in conjunction with the program.

Sixteen applications were approved for funding in 1991 representing 35,000 sinking units weighing 50-62 lbs. Mussel growers have expressed interest in phasing cement blocks into their crop rotation over the life of the program. Some interest has been shown in using other techniques and materials.

Aquaculture Technology Development Program

The purpose of this program is to provide an incentive for private aquaculture operations to develop or adopt new techniques or equipment, or to diversify into new approved species, in order to expand production, reduce production costs or otherwise increase earnings through more efficient production. As well, the program provides incentive to improve the environmental acceptability of aquaculture. The Department may provide a financial incentive of 75% of eligible expenditures to a maximum assistance of $20,000 for projects fulfilling the purpose of the program.

In 1991 the Aquaculture Technology Development Program assisted nineteen projects, with a total project value of $241,873 and forecast program contributions of $158,458.

The Finfish Division entertained nine applications throughout the year with assistance being approved for eight. One application was referred to the Product Utilization Program of the Resource Utilization and Marketing Division. Assistance under the program supported essential development in the areas of broodstock selection, live fish transport and on-farm technology. Following is a summary of finfish projects:

(i) The development and construction of a live fish hauling unit, sufficiently large and fail safe that the certified hatcheries of P.E.I. can take advantage of export fingerling and smolt markets, especially in the other Atlantic Provinces.

(ii) A dual objective project: 1) the design and construction of depth adjusting airlifts for fish tanks which can maintain flow when water level is adjusted in the tanks, thereby increasing the carrying capacity; and 2) design and construction of a skirt that

can be suspended under fish cages to catch settleable fish wastes and uneaten feed allowing the sludge to be pumped to a settling pond, thereby reducing the impact on fish ponds supporting cage culture.

(iii) The evaluation of an electronic bird deterrent in keeping preying birds away from fish ponds.

(iv) The second phase of a broodstock development program in which Hunter River and Morell stock speckled trout are being growth performance evaluated against a strain considered to be an industry standard.

(v) The evaluation of using low salinity (brackish) water for incubating Atlantic salmon, Arctic char, rainbow and speckled trout eggs to minimize fungal infections requiring the use of chemical treatments, as is the case using freshwater.

(vi) The refinement of a high efficiency, low head pump, manufactured locally, that may have application in many aquaculture installations with high volume, low head pumping requirements.

(vii) The determination of the effect of two different temperature and photoperiod regimes for broodstock, age of broodstock and hormone induction of spawning on the growth performance of Arctic char eggs, alevins and fry.

(viii) The evaluation of striped bass as a potential culture species for Prince Edward Island. This entails the capturing of wild broodstock, spawning and the culturing of offspring to determine growth performance under culture conditions. As of December 31st, 1991, one adult fish has been captured under scientific permit from Fisheries and Oceans Canada.

In the shellfish component of the program, including mussel culture, scallop culture, shellfish seed supply and clam culture, 11 projects were approved in 1991 for funding, and 3 projects were carried over from 1990 for completion. Following is a summary of 1991 shellfish projects:

(ix) Mechanization of a small scale mussel dory loading and unloading system for use at shorelines where dock and winch facilities are not available;

(x) Demonstration of the use of auger-type anchors, screwed into the bottom beneath mussel farms, as an alternative to other anchorage systems and sandbags;

(xi) Assessment of new methods of mussel longline sinking using concrete blocks and hydraulic equipment in place of sandbags;

(xii) Design and manufacture of an Oyster Lease Enhancement System to handle, harvest, tumble, or relay oysters as well as desilting oyster beds;

(xiii) Demonstration of a tranverse stern thruster on a mussel boat to improve working ability around mussel lines especially in windy conditions;

(xiv) Modifications to a shellfish nursery barge and set up of a land based intermediate storage upwelling unit to demonstrate the technical aspects of raising shellfish, mainly young oysters, in upwelling systems;

(xv) Demonstration of oyster lease cultivation in the East River to enhance the quality of oysters on several leases in the area by cultivating with a large vessel and building a desilting drag rake to be used by dories;

(xvi) Evaluation of sea scallop culture in Montague River, Cardigan River and Tracadie Bay with juvenile scallops and evaluation of sea scallop spat collection in close proximity to existing scallop beds. Three shellfish growers were supported under this program;

(xvii) Evaluation of Chinese hats as a collection method for individual oysters used to seed a lease and attempt to produce a high percentage of choice oysters;

(xviii) Installation of a jet drive unit in a mussel work boat to evaluate the unit's workability around and over mussel lines and in shallow water;

(xix) Demonstration of innovative oyster seed grow-out to compare the growth rate of various sources of oyster seed held in nortene bags on steel racks on an oyster lease.

FINFISH DIVISION

Edgar Mason, Finfish Manager

The goal of the Finfish Division is to concentrate efforts in assisting the finfish industry to establish the necessary on farm technologies and broodstock programs essential for the healthy growth and development of this young industry. In an effort to insure that industry growth is productive, the Department, with assistance from repesentatives of the finfish culture industry and Fisheries and Oceans Canada, is developing a strategy for the further development of the finfish culture industry. A first draft has been prepared. To date, efforts have been concentrated on the preparation of the marketing and broodstock components of the strategy. In conformance with the strategy as it is being formulated, farms are participating through special projects on the Aquaculture Technology Development Program to establish new technologies and equipment and enhance productivity.

The finfish culture industry is comprised of three types of operations: 1) Certified hatcheries maintain broodstock and supply fingerlings as starter stocks for meat fish producers and fee fish operators, both on P.E.I. and for export. Certified eggs are also exported to other hatcheries. Island hatcheries are producing starter stocks of rainbow and speckled trout, Arctic char and Atlantic salmon; 2) Island meat fish producers culture starter fish to sizes at which they can be processed and sold for consumption, both in local markets and for export. Rainbow trout and limited amounts of Arctic char and Atlantic salmon were grown for the meat fish market during 1991; 3) Fee fish operators allow customers to catch fish in stocked ponds and to purchase the catch. Rainbow and speckled trout are both used in the fee fish industry.

All stocks of fish at certified hatheries are sampled routinely by a Fish Health Officer of Fisheries and Oceans Canada to ensure that the stocks are not carrying specified fish diseases. These hatcheries must maintain "certified" status in order to export hatchery products. Presently, P.E.I. has one of the cleanest fish disease profiles in Canada. This, in combination with abundant quantities of excellent quality ground water gives the Island the opportunity to increase its export of certified hatchery products. There are three established certified finfish hatcheries on P.E.I. A fourth hatchery retired its certification during 1991.

There were thirteen registered meat fish producers in 1991, with one ceasing operation during the year. Two producers also operate two of the certified hatcheries. The main species of production was rainbow trout. However, production trials with Arctic char indicate that this species can be cultured successfully on the Island. Most export sales were through the Island Cultured Fish Cooperative Ltd.

Fee fishing offers both Islanders and tourists an opportunity to enjoy fishing a guaranteed catch at an affordable cost. Fee fish operators have the opportunity to produce meat fish to complement the fee fish business. Six fee fish operations were open for business during 1991. An additional operation is presently stocked with fish and will be operational in 1992.

Total sales for the finfish culture industry in 1991 grew by a modest 7% over 1990 sales. However, the ratio of contribution to sales by the three sectors of the industry changed considerably from 1990. Export sales of certified hatchery products, in particular for speckled trout and Arctic char, increased over 200%. Total sales of fee fish operations increased by approximately 50%. Meat fish sales declined by approximately 28%. However, fish inventory of meat fish producers is up from a year ago, indicating that production should increase in 1992. Also, broodstock, egg and fry inventories at the certified hatcheries support a further increase in sales from this sector in 1992.

Not only do the sales of cultured fish contribute to the Island economy, but in the majority of installations, fish are grown year round, resulting in the creation of year round jobs, an attractive stimulus to an economy so heavily dependent on seasonal employment. Approximately forty persons are employed, either full or part-time, in the industry. Also, the development of new technology found to work well in the industry may result in stimulating spin-off busines ventures. One PEI firm is manufacturing tanks and filtration equipment for fish farming and exporting much of its sales.

FIELD ACTIVITIES

Considerable effort was put forth to provide finfish growers with technical assistance to maintain good water quality at their sites. Assistance has been provided to evaluate new potential sites, study technical or biological problems affecting existing sites and design and monitor Aquaculture Technology Development Projects and Special Projects. The ability of the Department to provide technical assistance to growers was considerably reduced in August when the Finfish Technician was promoted to Shellfish Program Manager.

SPECIAL PROJECTS

The Department has engaged in several projects during the year which have direct relevance and impact on the finfish industry.

Last spring, the Department assisted in a study to evaluate the use of moist versus dry feed for feeding rainbow trout being cultured on surface water with a temperature range of 1 to 6oC. Using moist feed

resulted in better acceptance and faster growth of the fish. However, the data have not yet been statistically analyzed to determine if the benefits of the faster growth rate are significant enough to offset the higher cost of moist feed.

The Department also assisted in a study to evaluate herring silage versus herring held in freezer storage in the production of moist fish feed during winter and spring. Results indicate that good quality herring silage can be substituted for frozen herring in the production of moist fish feed.

Two projects were carried out on fish farms with significant input and assistance from the farm operators. Water samples were analyzed in laboratory facilities shared with the Department of the Environment. Data was recorded and sorted on computer to ready the data for statistical analysis.

(1) A project was undertaken for a second summer to monitor the effluent from fish farms. In some provinces, guidelines have been set to limit the amount and type of industry effluent that can be safely returned to the environment. Such guidelines have not yet been formulated for PEI. In consultation with industry and Department of the Environment representatives, it was decided to evaluate the parameters of effluent from three typical land-based fish farms. Data included the performance of effluent settling ponds. Results have yet to be statistically analyzed, but preliminary data indicate that land-based finfish farming has no detrimental effect on our environment.

(2) A program was established whereby the water quality of five fresh water ponds used by the industry for fish culture, was routinely monitored throughout the summer months. Data collected can assist in predicting changes in water quality due to algae blooms. This will enable growers to prepare and respond quickly to the problem and prevent or minimize stock losses.

Striped bass is indigenous to Gulf of St. Lawrence waters and grows well in warm seawater and freshwater. It is believed that this fish may be a potential species for estuarine cage culture during warmer months and for land-based ground water culture during the colder months. One Island finfish grower has expressed much interest in evaluating this species for culture.

WORKSHOPS/ CONFERENCES

In March, the Atlantic Veterinary College hosted a seminar with Dr. Bill Klontz and Mrs. Martha Klontz as guest speakers. Dr. Klontz is a veterinarian and professor at the University of Idaho and has been involved in the large Idaho trout industry for 35 years. Mrs. Klontz is a product development consultant, specializing in trout products. The Department arranged for industry members to participate in informal seminars and discussions with the Klontz's and arranged a filleting demonstration and preparation of several recipes using Island grown rainbow trout and Arctic char.

Several staff members of the Aquaculture Branch attended the Aquaculture Association of Canada meeting in St. Andrews in mid June as well as the St. Andrews Aquaculture Fair and Trade Show. The annual AAC meeting is held to update the aquaculture industry institutions and organizations supporting it, on new technological developments in the field, policy and regulation changes affecting aquaculture, and directions in marketing. The Department assisted the cost of registrations for private growers to lessen their cost to attend these important meetings.

SHELLFISH DIVISION

Richard Gallant - Shellfish Manager
Matt Smith - Shellfish Technician
Paul Burleigh - Shellfish Technician
Brian Gillis - Shellfish Technician
Terry Bernard - Shellfish Technician

The Shellfish Division is responsible for carrying out a broad range of programs and services for the development of the molluscan shellfish resources. Prince Edward Island has benefited greatly from the enhancement of the public oyster fishery, the establishment of commercial mussel farms, the management of the clam and quahaug fisheries to take advantage of relay opportunities, and the investigation of opportunities for the culture of other species.

The combined value of the landings of oysters, mussels, quahaugs, scallops, bar clams and soft shell clams exceeds eleven million dollars annually and provides a major source of income to nearly two thousand individuals.

OYSTERS

Enhancement of the public fishery beds by spat collection programs, shell dredging, shell bed cultivation and relay fisheries continued to respond to the industry's needs in 1991. Lease holders continued to show commitment to developing high quality oysters by cultivating leases and raising individual seed. Oyster shipments were down slightly from the 1990 level. The market place exhibited a continued trend towards choice quality oysters exemplified by the weak price for the standard and commerial grades in the fall market.

Oyster Enhancement

The oyster enhancement program is a joint project of the Department of Fisheries and Aquaculture, the Department of Fisheries and Oceans and the Prince Edward Island Shellfish Association with funding for the program provided through the Canada - P.E.I. COOPERATION Agreement on Fisheries Development.

The aim of the program is to increase the Island's production of oysters which, in turn, increases the financial returns to the harvesters, dealers and the provincial economy. Efforts to collect oyster spat, relay oysters from areas of heavy concentration to areas of lesser concentration or to better growing bottoms, and efforts to cultivate shell beds to improve the conditions for natural spat collection were continued during 1991.

To assist in implementing this Program, the P.E.I. Department of Health and Social Services Job Creation Program provided a total of 475 weeks of employment to 55 social assistance workers in 1991. The job creation employees were supervised by a staff of 3 managers funded through grants from the P.E.I. Department of Fisheries and Aquaculture and the Department of Fisheries and Oceans, and administered by the P.E.I. Shellfish Association. Material purchases needed to equip the project and travel expenses were also jointly funded by the two levels of government.

During 1991, 80,000 mesh bags were prepared and filled with oyster shell to act as collectors for the free swimming oyster larvae. These collectors were suspended on either fencing or longlines. The fencing material (small diameter, 15 foot poles) was cut on provincial forestry land in Mt. Stewart. Longlines were the main method of suspending collectors in Smelt and Paughs Creeks.

Over 1,200 cu. yds. of shell was mined by the Fisheries and Oceans barge in Malpeque Bay. This provided the necessary shell for spat as well as 50 leaseholders with the necessary shell to fill their own collectors.

Beginning in mid-September, seeded shell from the spat collectors was transported to a number of good grow-out areas such as East River, West River, Bideford River, Bedeque Bay and Wilmot River. The seed oysters had, by this time, grown on the shell collectors to a length of 18 to 24 mm (the size of a dime or quarter). These young oysters will grow to market size (75 mm) within five years providing added income valued at one to three million dollars. In total, over 5,000 five peck boxes of spat were collected to seed-out new areas and enhance heavily fished grounds. (See Table 1, Page 39.)

Thirty-nine leaseholders fished 1,840 five peck boxes of oysters in a relay project in Pisquid during the last two weeks of April. These oysters are thin lipped, poor shaped and severely over-crowded; however, on better bottom they will shape up and produce good market oysters. The harvest area has a history of good spat settlement and this provides the leaseholder with an excellent annual source of natural seed and broodstock.

A total of 1,902 boxes of oysters and spat-bearing shell were relayed to better growing bottom at selected areas within East River and Bedeque Bay and should be ready to market within three years. It is estimated that the market value of these oysters will have reached approximately $190,000 at that time.

Extension

A small group of oyster lease holders and staff of the Department of Fisheries and Aquaculture and Fisheries and Oceans toured the oyster seed collection area of Bouctouche Bay, N.B. and the seed farm of Acadian Aquaculture Limited of Richibuctou, N.B. on October 24, 1991. The tour was coordinated with the assistance of N.B. Department of Fisheries and Aquaculture and was carried out to observe the successful seed collection effort in New Brunswick.

MUSSEL CULTURE

The value of the cultured mussel

production continued to be second only to lobster in 1991, a distinction it achieved in 1989 and 1990. There are 255 permanent and developmental leases comprising a total of approximately 7260 acres farmed by 90 growers. It is generally believed that further increases in cultured mussel production will come from expansion on existing leases, with little further availability of new, high quality, deep, sheltered growing areas.

The cultured mussel industry continued to expand its production in 1991 with preliminary statistics indicating production was up 27% over 1990, reaching 7.5 million pounds.

A seed performance survey was conducted by the Branch in 1991 to determine if there is a link between seed source and the occurrence of summer mortality. The survey consisted of interviewing 20 mussel growers representing 42 leases and 14 seed sources and recording their observations and opinions. Growers experienced few problems with summer mortality in 1991 possibly attributed to cooler water temperatures.

Starfish infestation on spat lines was particularly severe in the New London Bay system and, to a lesser extent in other rivers and bays. The heavy infestation of starfish caused shortages of mussel spat in the fall requiring some growers to cut back on the number of socks placed on their leases. This decrease may be reflected in the 1992-93 production. Further investigation into the starfish infestation and control is warranted in the future.

Mussel Monitoring Program

The Mussel Monitoring Program continued to assist mussel growers to efficiently manage their resource. The Program provided 90 mussel growers in 17 rivers and bays with valuable information on their mussel leases over a 30 week period from May to December. Each of the mussel growing areas was visited an average of 15 times on a rotating schedule. Information on temperature, salinity, mussel meat condition index, size and concentration of mussel larvae, and concentration of starfish larvae was recorded. The information was sent to mussel growers as a weekly report.

As a result of the mussel toxin crisis of 1987-88 the mussel monitoring program also provides mussel growers with essential information on estimated concentrations of potentially toxic phytoplankton such as: (i) Nitzschia pungens, the diatom linked to the A.S.P. (Amnesic Shellfish Poisoning) toxin "domoic acid", (ii) Alexandrium, the dinoflagellate responsible for P.S.P. (Paralytic Shellfish Poisoning, and (iii) Dinophysis, the dinoflagellate responsible for D.S.P. (Diarrhetic Shellfish Poisoning). The phytoplankton monitoring activity is meant to serve as a guide to mussel growers to indicate the levels of phytoplankton in the water but does not serve as a basis for closure of a particular river or bay. The Federal Department of Fisheries and Oceans maintains the responsibility for monitoring the toxicity of phytoplankton and shellfish in the river systems and for instituting closures if necessary.

QUAHAUG CULTURE

Hatchery Operation

As in three previous years, arrangements were made to produce quahaug seed at the Ellerslie Fisheries Station in conjunction with the Holland College Aquaculture Technology Program. Early in 1991 four million seed were produced with two million seed being utilized by Holland College and two million being used by the Department.

Quahaug Culture Incentive Program

1991 was the third full year for the Quahaug Culture Incentive Program.

In April, a workshop was held for participants in the program and other shellfish growers interested in the quahaug culture. The results of the previous years grow out sites were discussed along with alternate techniques that might be tried during the upcoming summer.

In order to evaluate a larger number of sites, 8,000-10,000 quahaugs and a 16 ft. cage were given to each of 16 additional growers on a trial basis. A total of 517,000 seed (3-6 mm) were distributed to the twenty-five growers, starting on June 1, with most of the seed put out by the end of June.

As in previous years, growth and survival varied greatly among sites. The growth at sites varied, with the average growth at the best site being 14.3 mm. The survival at sites ranged from 0-100%. Some losses are unexplained but most losses are due to predation from mud crabs, moonsnails and starfish with mud crabs being the main predator. As in 1990, predators entered cages because they were not properly sealed, the net became ripped, were introduced with the sand being put in the cage; or other unknown reasons. In October and November most growers made arrangements to overwinter their quahaugs by putting them in sinking trays (boxes or cages) and submerging them in deep water for the winter.

The quahaugs hatched in 1989, the first year of the project, now range in size from 9.5 mm to 49.3 mm, with an average of 29 mm.

Field Studies

Approximately 1.3 million seed were provided to evaluate the use of two upwellers and a raceway that were set up next to the Ellerslie Fisheries Station seawall. Two hundred thousand seed were also used to evaluate the use of various cage systems, i.e. on bottom, on blocks, floating, intertidal, subtidal, sand substrate, gravel substrate, and no substrate. The results of these studies are yet to be analyzed.

In the fall some of the seed from these projects was provided to study the use of various overwintering

systems, i.e. sinking trays, cages in various depths of water, and nortene bags on the bottom and on racks in deep water.

Public Quahaug Fishery Enhancement

During the summer two projects were carried out in relation to improving the public fishery.

One project was set up to see if the number of larval quahaugs that set and survive to fall can be increased. To do this, nine settlement trays were put out intertidally at four different locations before the quahaugs set and they were recovered in the fall. Three types of trays were used: 1) sand substrate, 2) sand substrate covered with pea gravel, and 3) sand substrate covered with net. Although results are inconclusive, there did seem to be some improvement in recruitment where gravel and net were used to cover the sand. Net covered plots at Vernon and Pownal had as many as fourteen quahaugs/ plot (2-9 mm, mean 3.2 mm). Only one tray was recovered at East River and it had one quahaug (6 mm) and similar to last year there were no quahaugs in any of the Enmore trays.

The second project was set up to determine the feasibility of enhancing public beds using hatchery reared seed (3-6 mm). At three sites, seed was placed in the same types of trays as used in the first study. The overall average survival was 11.9% with no protection, 13.9% with gravel covering and 19% with net covering. Although nets improved survival, the survival rate was extremely low. This could be attributed to wash out because trays were close to shore or due to predation on the small quahaugs.

Bar clams were also spawned and approximately one million juveniles were raised to 1 mm, at which point they experienced total mortality, possibly caused by fresh water.

In the fall, quahaug brood stock were brought into the hatchery in preparation for production of seed for 1992.

SCALLOP CULTURE

Bay Scallops

Bay scallops were maintained in a quarantine unit at the Ellerslie Fisheries Station throughout the year. Year old scallops were spawned in March and approximately 100,000 juveniles were produced. Throughout the summer, slow growing scallops were culled. Some of these culled scallops were given to the Atlantic Veterinary College for parasite work. The remainder were discarded. By the end of the year, approximately 230 scallops (20-25 mm) remained. These scallops will provide broodstock necessary to produce another generation of scallops in 1992.

The decision regarding bay scallop release from quarantine is pending results of a parasite study by the Atlantic Veterinary College and a decision by the P.E.I. Introductions and Transfers Committee.

Sea Scallops

The sea scallop component of the scallop culture project was initiated in 1991. A technician was contracted for 28 weeks to coordinate all facets of the project including literature review, collection permits, scientific protocols, grower participation and project logistics. Three Aquaculture Technology Development projects were approved to evaluate grow-out of juvenile scallops and collection of spat by private growers at various sites around P.E.I.

Each participant received 1,000, 10 - 50 mm scallops from a bed off Boughton Island and 200 scallops from a bed off Wood Islands. Juvenile scallops were placed in lantern nets in the Montague River, Cardigan River and Tracadie Bay. Growth rates of the scallops over the two month period from August to October indicated a doubling in size of 10-20 mm juveniles and greater than 10% growth in 36-50 mm animals. All three growers experienced losses of less than 10%.

One hundred spat bags were prepared by each participant and deployed near existing scallop beds off Panmure Island, Boughton Island and Tracadie Harbour in early September. One spat bag from each site was examined on October 17, with the assistance of Marc Lanteigne, a scallop specialist with the Department of Fisheries and Oceans. Preliminary success was evident in one set of bags. All spat lines and grow-out lines were secured for winter ice cover by the program participants.

SHELLISH DEPURATION

Quahaug Relay

In 1991 the Department entered into an agreement with the Prince Edward Island Shellfish Association for a second trial relay of quahaugs. The program ran from July 23 to September 13 at Wrights Creek on the East River. One buyer participated in the fishery with a second joining near the end of the program. A total of 110,565 lbs. of quahaugs were relayed with a value of $66,175 utilizing 601 person days.

TABLE 1
1991 SPAT COLLECTION
AND OYSTER RELAY ACTIVITY RESULTS

	SPAT* 1	SPAT* 2	RELAYED OYSTER*
RECEIVING AREA			
Fullerton's Marsh	667	364	88
Proctor's Cove	641	328	82
West River	152	36	9
North River	86	128	25
Wilmot River	1,315	-	852
Bedeque Bay	1,692	-	-
Bideford River	500	-	-
Totals	5,053	856	1,056

*Quantities given as five-peck oyster boxes

Spat 1 - Spat from shell bags.

Spat 2 - Spat from relays.

APPENDICES

APPENDIX 1
DEPARTMENT OF FISHERIES
P.E.I. LOBSTER LANDINGS AND VALUES
(1920 - 1991)

V = Values in ($000's)
Q = Quantity in millions lbs.

	Q	V		Q	V
1920	8.3	703.9	1960	10.1	3,212.3
1921	6.4	255.3	1961	9.5	3,055.0
1922	8.8	651.4	1962	8.7	3,218.9
1923	9.7	878.8	1963	7.4	3,155.8
1924	6.5	564.8	1964	7.8	4,210.8
1925	7.9	661.1	1965	8.8	5,176.6
1926	6.6	601.8	1966	7.9	3,925.7
1927	6.3	617.1	1967	9.0	5,228.8
1928	6.6	553.1	1968	8.7	5,328.9
1929	7.4	621.5	1969	8.2	5,375.8
AVG. 20's	7.5	610.9	AVG. 60's	8.6	4,188.9
1930	8.1	539.7	1970	8.7	6,231.2
1931	9.4	553.7	1971	8.2	5,860.6
1932	11.5	551.7	1972	7.3	6,360.8
1933	9.2	396.2	1973	7.7	7,503.2
1934	7.7	536.0	1974	6.2	6,347.0
1935	6.4	467.8	1975	8.6	8,135.5
1936	6.0	544.4	1976	8.5	8,510.5
1937	5.8	524.8	1977	9.1	10,012.0
1938	7.1	458.8	1978	11.1	16,648.6
1939	7.0	464.4	1979	11.8	18,073.9
AVG. 30's	7.8	503.8	AVG. 70's	8.7	9,368.3
1940	5.6	353.9	1980	11.8	15,458.0
1941	6.0	469.2	1981	11.9	18,519.0
1942	6.4	694.8	1982	12.2	22,599.0
1943	6.0	999.9	1983	15.5	29,056.1
1944	6.6	1,149.7	1984	13.6	23,137.0
1945	8.1	1,503.6	1985	15.0	33,591.0
1946	7.9	1,982.7	1986	18.3	44,494.2
1947	6.2	1,070.0	1987	18.9	49,532.0
1948	6.5	1,411.9	1988	22.0	56,128.9
1949	6.8	1,388.4	1989	21.3	46,058.0
AVG. 40's	6.6	1,102.4	AVG. 80's	16.1	33,857.5
1950	9.9	1,963.0	1990	22.5	40,348.0
1951	8.3	1,702.0	1991	22.8	48,521.9
1952	8.4	1,849.0			
1953	7.0	1,997.0			
1954	7.4	1,977.0			
1955	8.3	2,324.0			
1956	9.7	2,725.8			
1957	8.5	2,456.3			
1958	8.0	2,510.2			
1959	8.4	2,843.2			
AVG. 50's	8.3	2,236.8			

APPENDIX 2

GENERAL FISHERIES FACTS 1991

P.E.I. Fishermen and Helpers	
Bonafide fishermen *	5,059
Commercial fishermen **	1,383
Vessels - (55')	3,676
(55')	1,503
	3
Licences by Species:	
Groundfish	925
Herring	867
Mackerel	821
Tuna	361
Scallops	400
Lobster	1,306
Eels	261
Silversides	36
Smelts	403
Snow Crab	16
Oysters	1,098
No. of employees in processing plants (approx. maximum in peak season)	2,400
No. of provincially licenced and federally registered export plants (not including buying stations)	40
No. of provincially licenced non-export plants	22
No. of major shellfish shippers	12
No. of trout hatcheries	4
No. of trout processors	4
No. of seaplant companies	4

**Bonafide Fisherman* - is a fisherman who is registered as a commercial fisherman, and is the holder of a limited fishery licence, subject to meeting one of the following three conditions:

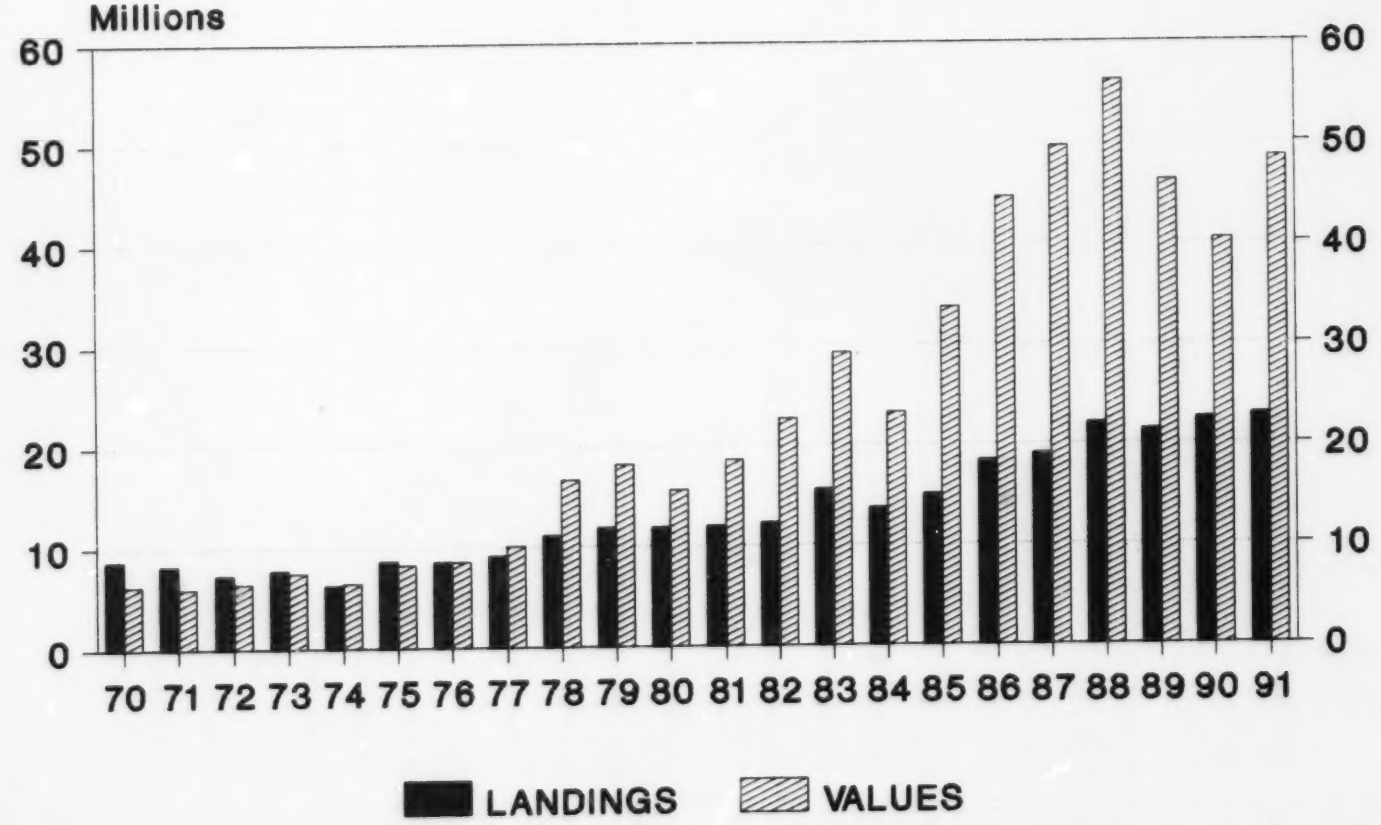
(1) is the holder of a Category A lobster fishing licence.

(2) showed proof of 75 percent or more of his income from fishing using his own boat and/or equipment except where this boat and/or equipment is not required.

(3) showed proof of sales of fish in 1988, with a landed value in excess of $15,000 using his own boat and/or equipment except where this boat and/or equipment is not required.

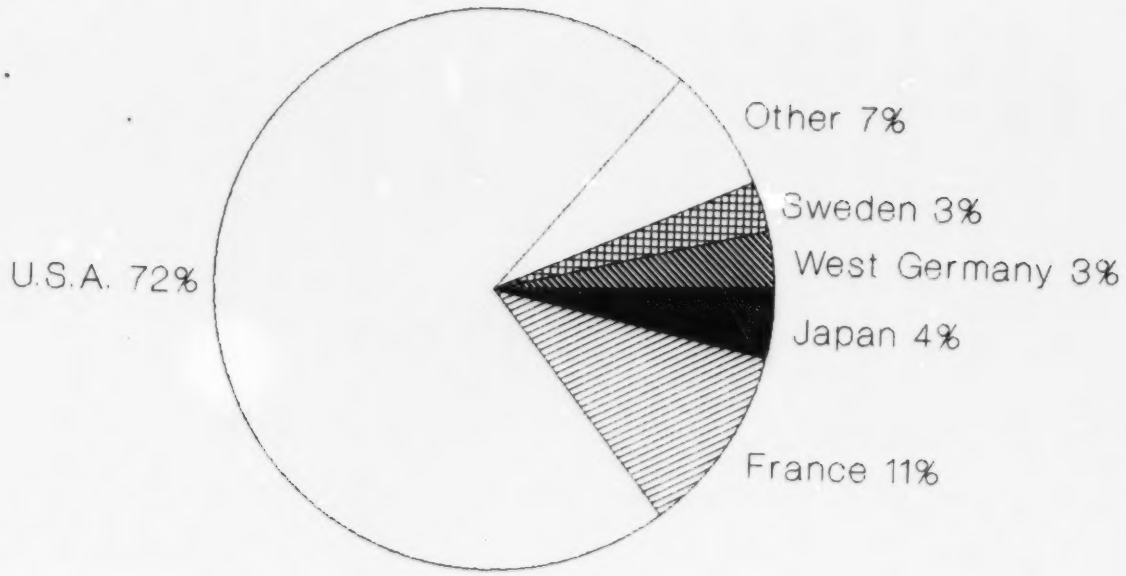
***Commercial Fisherman* - is a registered fisherman who does not meet the requirements of a bonafide fisherman.

P.E.I. LOBSTER LANDINGS & VALUES
1970-1991

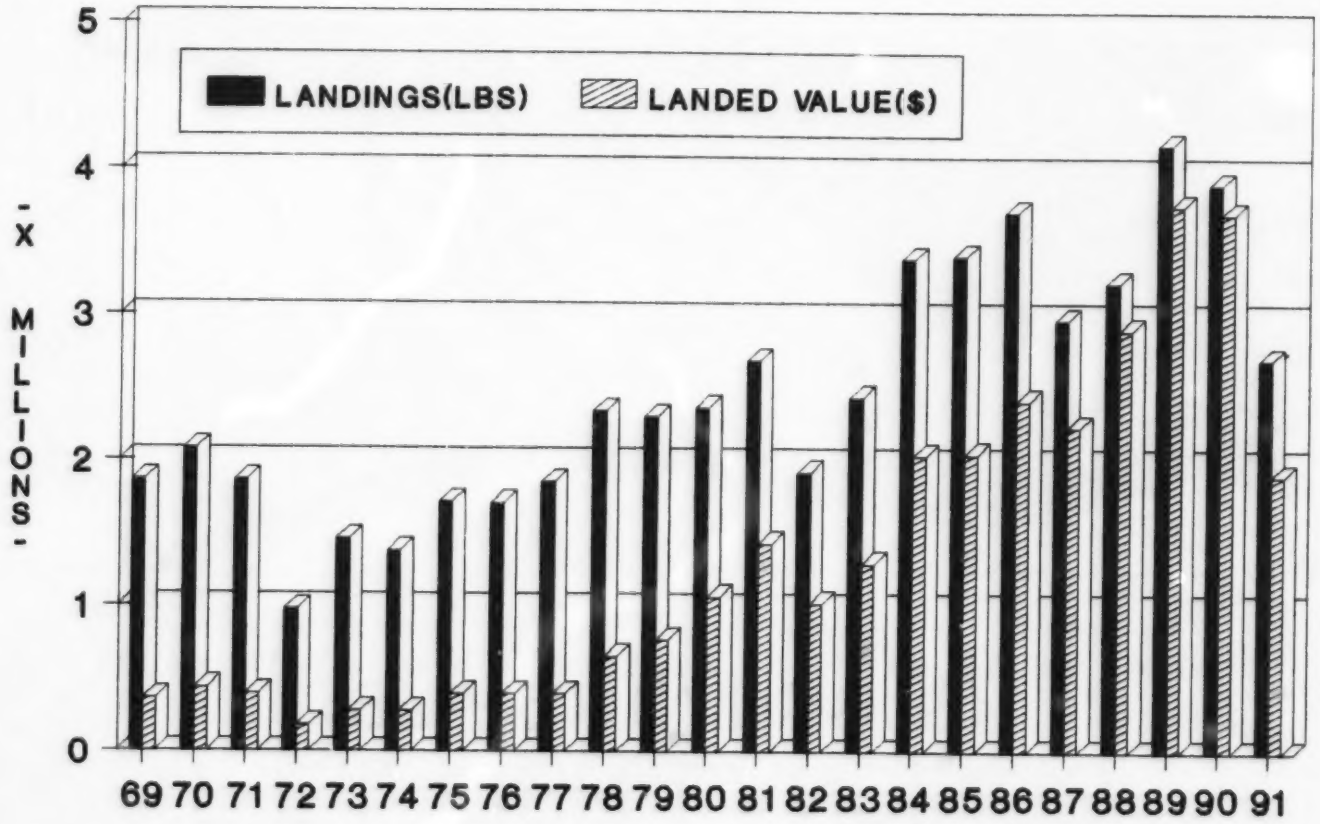


APPENDIX 3

P.E.I. EXPORT MARKETS-FISH PRODUCTS
% of Value Per Country, 1990

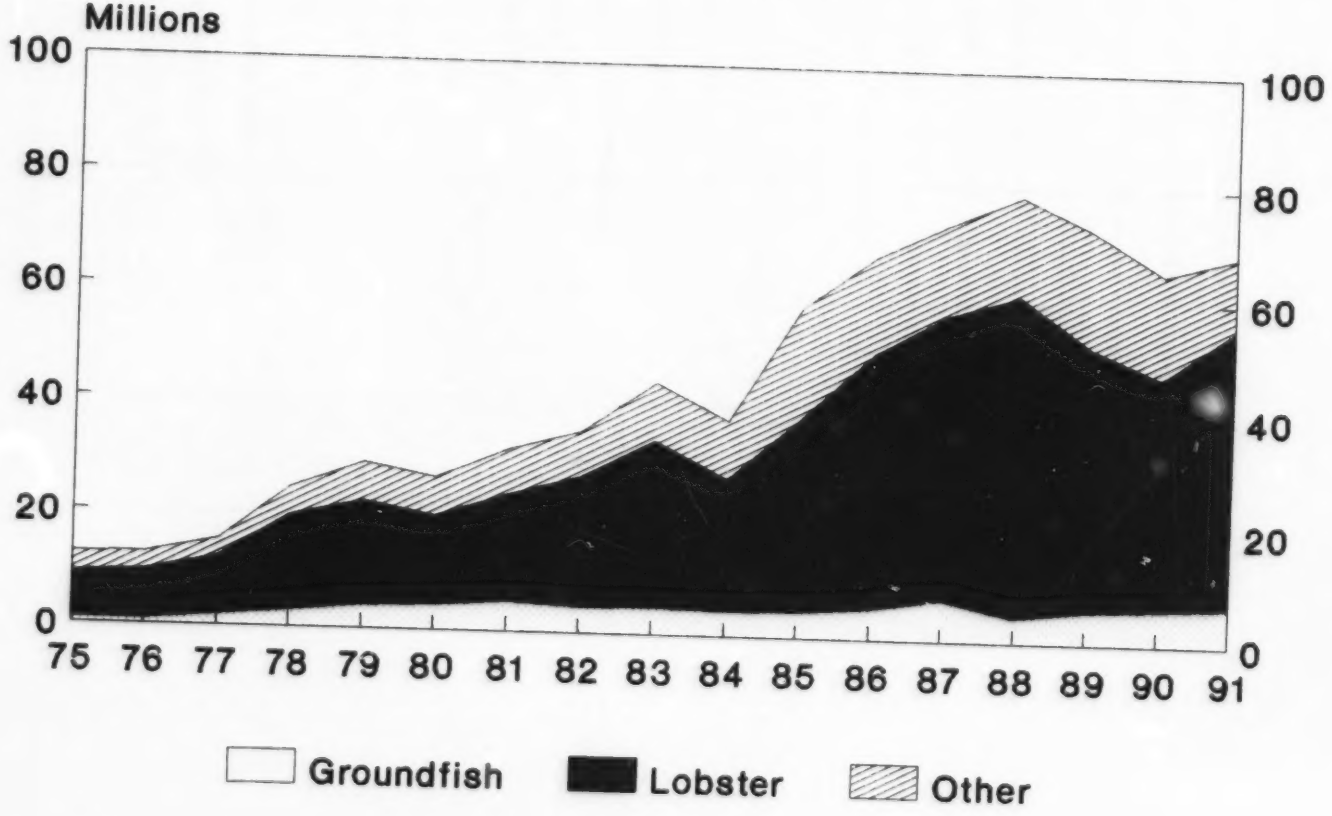


PEI OYSTER LANDINGS BY YEAR, 1969-1991



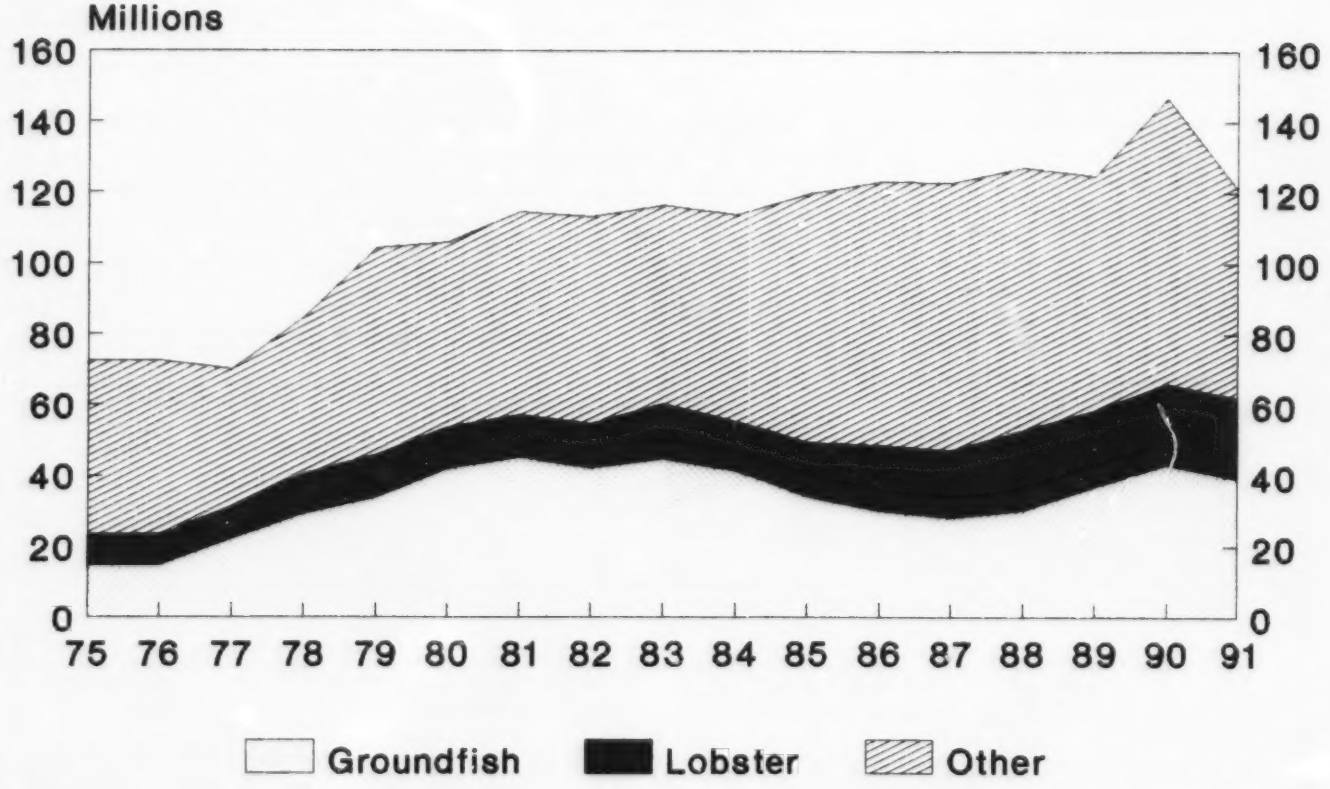
Preliminary figures for 1990 & 1991

P.E.I. FISH LANDINGS
1975-91, (Millions $)



1990 & 91 figures are preliminary.

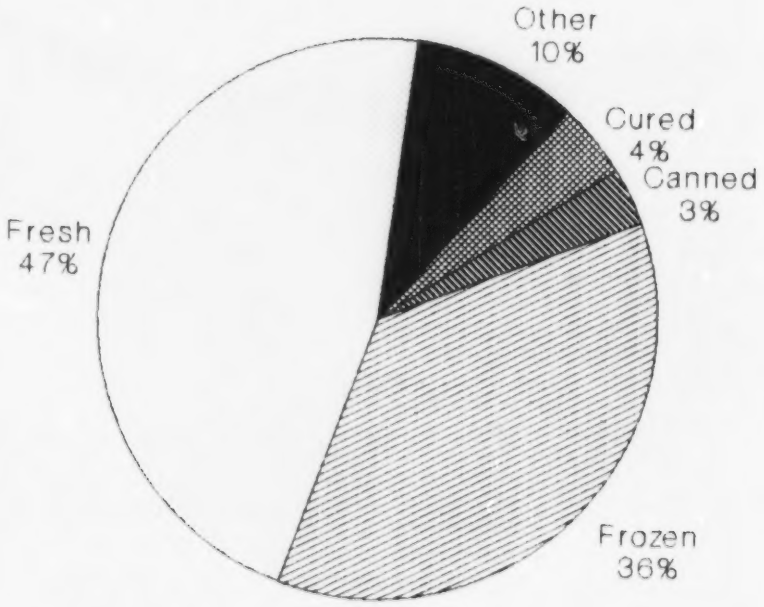
P.E.I. FISH LANDINGS
1975-91(millions lbs.)



1990 & 91 figures are preliminary.

APPENDIX 7

P.E.I. FISH PRODUCTION SALES
% of Volume by Product, 1990



Preliminary

APPENDIX 9

ORGANIZATIONAL CHART
DEPARTMENT OF FISHERIES AND AQUACULTURE